Department for Energy Security & Net Zero

AtkinsRéalis

National Policy Statements for Energy - Update 2025

Habitats Regulations Assessment

Department for Energy Security and Net Zero

April 2025

Notice

This document and its contents have been prepared and are intended solely as information for the Department for Energy Security and Net Zero and use in relation to the Habitats Regulations Assessment of the Energy National Policy Statements Update 2025.

AtkinsRéalis UK Limited assumes no responsibility to any other party in respect of or arising out of or in connection with this document and/or its contents.

The information which AtkinsRéalis UK Limited has provided has been prepared by an environmental specialist in accordance with the Code of Professional Conduct of the Chartered Institute of Ecology and Environmental Management. AtkinsRéalis UK Limited confirms that the opinions expressed are our true and professional opinions.

This document does not purport to provide legal advice.

Document history

Document title: Habitats Regulations Assessment

Document reference: 100111200

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
Rev 1.0	Draft for client comment	PW	AW	LMG	PMcE	14 March 2025
Rev 2.0	Updated following client comment	PW	AW	PMcE	PMcE	24 March 2025
Rev 3.0	Updated for issue	PW	AW	CW	PMcE	15 April 2025

Client signoff

Client	Department for Business, Energy & Industrial Strategy
Project	National Policy Statements for Energy - Update 2025
Job number	100111200
Client signature/ date	

Contents

Tables

Non-Technical Summary

Purpose of this report

This document is the Habitats Regulations Assessment (HRA) report for the 2025 update to the National Policy Statements (NPS) for Energy, published by the Department for Energy Security and Net Zero (DESNZ) for consultation. In July 2024, the government launched a review of the energy NPSs to ensure they reflected government's energy priorities as set out in the Clean Power 2030 mission.

The Energy NPS has been set out in the following series:

- EN-1: Overarching NPS for Energy;
- EN-2: Natural Gas Electricity Generating Infrastructure;
- EN-3: Renewable Energy Infrastructure;
- EN-4: Natural Gas Supply Infrastructure and Gas and Oil Pipelines;
- EN-5: Electricity Networks Infrastructure; and
- EN-6: Nuclear Power Generation (deployable before 2025).

Other than EN-6, all other elements of the NPS (EN-1 to EN-5) were reviewed and adopted in 2024. EN-1, EN-3 and EN-5 are being updated in 2025. As part of the review and update process, amendments have been made throughout EN-1, EN-3 and EN-5 and these are addressed in this HRA. These are reported alongside the findings for EN-2 and EN-4. Neither EN-6 or EN-7 are included in this update. EN-7 is current being developed and will sit alongside the other Energy NPS, including EN-6 which is retained for reference.

This report presents the methodology and findings of the HRA undertaken for the updated Energy NPSs.

Requirements for HRA

In England and Wales, under the Conservation of Habitats and Species Regulations 2017 (as amended) and the Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended)[1] (collectively referred to throughout this document as the 'Habitats Regulations') an 'Appropriate Assessment' is required to for proposed plans or projects which are not necessary for the management of a Habitats Site but which are likely to have a significant effect on one or more Habitats Sites either individually, or in combination with other plans or projects. These sites include:

- Special Areas of Conservation (SACs)[2] originally designated under the 'Habitats Directive' for the conservation of natural habitats and of wild fauna and flora; and
- Special Protection Areas (SPAs) originally designated under the 'Wild Birds Directive' for rare, vulnerable and regularly occurring migratory bird species and internationally important wetlands.

The National Planning Policy Framework (NPPF)[3] states that listed or proposed Ramsar sites[4], potential SPAs (pSPA), possible SACs (pSAC) and any site identified, or required, as compensatory measures for adverse effects on any of the above-named sites should be given the same protection as Habitats Sites. All the above sites are hereafter referred to as Habitats Sites.

The Guidelines on the Assessment of Transboundary Impacts of Energy Developments on Natura 2000 Sites Outside the UK (2015)[5], as referenced in The Planning Inspectorate Advice Notes Ten[6] and Twelve[7], states that the principles of the Habitats Directive (and, therefore, the Habitats Regulations) should be applied to any energy development where significant effects could occur for International Sites outside of the UK. As such, potential for transboundary effects has been considered in this HRA.

Summary of findings

As the updated Energy NPSs do not set out specific locations for development, the HRA is high-level and strategic and assesses the policy content of the NPSs and the potential effects of energy infrastructure development arising from the plan. As the exact location of infrastructure cannot be known until specific

proposals come forward, it is not possible to identify potential effects on specific International Sites. Therefore, effects are considered in generic terms.

Due to the lack of detail and following the precautionary principle, adverse effects on the integrity of one or more Habitats Sites as a result of the energy infrastructure development cannot be ruled out. However, the content of the Energy NPSs provide a robust commitment to the identification, avoidance and minimisation of impacts on Habitats Sites, detailed assessment, mitigation and consenting guidance for the Secretary of State (SoS). Therefore, taking that commitment into account, adverse effects on the integrity of Habitats Sites as a result of the NPSs are considered unlikely.

Despite the confidence in the conclusion that the updated NPSs themselves will not result in adverse effects on the site integrity of Habitats Sites, Section 6 of updated EN-1 provides the case for imperative reasons of overriding public interest ('IROPI') for information and sets out why the Government considers that the Energy NPSs are needed. This information is applicable to updated EN-1, EN-3 and EN-5, and is provided without prejudice to or implication for any project-level HRA.

Where projects may result in adverse impacts on the integrity of one or more Habitats Sites, measures must be implemented to avoid and mitigate impacts, and, if this is not possible, the project must be demonstrated to meet the tests for absence of alternative solutions, IROPI and secure and deliver adequate compensation for any remaining adverse impacts arising from the development.

The Clean Power 2030 Action Plan sets out pathways for meeting the 2030 Clean Power target and the Energy NPSs have been updated to reflect the needs of Clean Power 2030 and putting it front and centre as the primary policy that the NPSs enable. Projects relevant for Clean Power 2030 can be deemed Critical National Priority (CNP).

CNP low-carbon infrastructure continues to be defined within the updated NPSs and the need for these projects in providing energy security and a decarbonised energy supply justified. In relation to CNP infrastructure projects concluding that there may be residual adverse effects and subsequently, where there is a need to identify and assess alternative solutions, what would not be classed as a suitable alternative has been set out. The updated Energy NPSs not only contain provisions to assist in favourable consideration of the alternatives test, but also a clear indication that the Government believes this type of development to have a strong IROPI case. Compensation would still need to be secured in order for the SoS to grant permission for the project to proceed.

In embracing a holistic approach, as championed by the updated NPSs, where there are multiple projects in planning for which compensation for one or more Habitats Sites would be required, a co-ordinated strategic approach is recommended. This is championed in updated EN-3 with the need to consider other consented and existing arrays and the development of Defra's Offshore Wind Environmental Improvement Plan (OWEIP) to help remove environmental barriers and speed up consenting and delivery of offshore wind development.

1. Introduction

1.1. The Energy National Policy Statement Update 2025

This document is the Habitats Regulations Assessment (HRA) report for the 2025 update to the National Policy Statements (NPSs) for Energy, published by the Department for Energy Security and Net Zero (DESNZ) for consultation. In July 2024, the government launched a review of the energy NPSs to ensure they reflected government's energy priorities as set out in the Clean Power 2030 mission.

NPSs are designated under the Planning Act 2008 to provide guidance for decision-makers on the application of government policy when determining development consent for major infrastructure. Their function is to state clearly how existing policy applies to development consent, removing discussion of the merits of government policy from the examination process so that decisions can be made on the basis of planning considerations alone. NPSs apply to infrastructure that is defined as a Nationally Significant Infrastructure Project (NSIP) in the Planning Act 2008.

The Energy NPS has been set out in the following series:

- EN-1: Overarching NPS for Energy;
- EN-2: Natural Gas Electricity Generating Infrastructure;
- EN-3: Renewable Energy Infrastructure;
- EN-4: Natural Gas Supply Infrastructure and Gas and Oil Pipelines;
- EN-5: Electricity Networks Infrastructure; and
- EN-6: Nuclear Power Generation;

Note that EN-6 relating to nuclear generation remains as designated by the Department of Energy and Climate Change in 2011. EN-6 only has effect in relation to nuclear electricity generation deployable by the end of 2025 but continues to provide information that may be important and relevant for projects which will deploy after this time. A new NPS (EN-7) for nuclear energy is current being developed and will sit alongside the other Energy NPS, including EN-6 which is retained for reference.

EN-1 to EN-5 were adopted in 2024 after undergoing a process of revision. EN-1, EN-3 and EN-5 are being updated in 2025, and as such only EN-1, EN-3 and EN-5 are the subject of this updated HRA. While the review is undertaken, the current suite of energy NPS remain relevant government policy and EN-1 to EN-5 have effect for the purposes of the Planning Act 2008.

As part of the updating and review process, amendments have been made throughout EN-1, EN-3 and EN-5 and these are addressed in this HRA. These are reported alongside the findings for EN-2 and EN-4. While these elements were not subject to revision, it was considered important to include these findings in order to provide a comprehensive assessment of the Energy NPSs.

1.2. Summary of Updates

An overview of the material changes to EN-1, EN-3 and EN-5 are as follows:

Clean Power 2030: In the Clean Power 2030 Action Plan, the government committed to updating the NPSs for Energy in 2025 to reflect the needs of Clean Power 2030, improving policy certainty for developers and examining authorities. The policy narrative through EN-1 has been updated to bring Clean Power 2030 front and centre as the primary policy that the NPSs enable. It points towards the Clean Power 2030 Action Plan, which contains the capacity ranges for technologies in 2030 that the NPSs support. Successfully delivering Clean Power 2030 will require rapid deployment of new clean energy capacity. Delivering Clean Power 2030 also paves the way to decarbonising the wider economy by 2050, and focussing the narrative around the planning system on it will enable meeting those ranges by ensuring developers bring forward relevant projects.

Infrastructure projects relevant for Clean Power 2030 can be deemed Critical National Priority (CNP), with a presumption in favour of consent. This means that Energy from Waste projects will no longer benefit from CNP policy as they do not meet the definition of a clean power technology in the Clean Power 2030 Action Plan.

CNP policy was introduced in the previous 2024 amendments to the NPSs. The policy allows for the importance of low-carbon infrastructure to be considered during the decision-making process by the Secretary

of State. The policy means that for qualifying infrastructure projects, where residual impacts remain after the mitigation hierarchy has been applied, it is unlikely that consent will be refused on the basis of these residual impacts.

Onshore Wind: Onshore wind is a mature, efficient and low-cost technology that plays an important role in the UK's energy mix. The mass deployment of onshore wind farms is critical in meeting the government's 2030 clean power pathway. The Clean Power 2030 Action Plan estimates the need for 27-29 gigawatt (GW) of operational onshore wind capacity by 2030.

It is considered vital that developers use the most efficient planning route to seek consent for their energy projects in order to make the UK a clean energy superpower. This is why, following consultation, government committed in December 2024 to reintroduce onshore wind into the NSIP regime at a threshold of 100 megawatt (MW).

Reintroducing onshore wind into the NSIP regime will ensure there is a level playing field with other generating technologies such as solar, offshore wind and nuclear. This will provide an appropriate route for large-scale projects seeking planning consent, where local impacts can be carefully balanced against the national benefits and meeting the UK's wider decarbonisation goals. To support the assessment and determination of onshore projects entering the NSIP regime, government has included a new section within EN-3 addressing the impacts, considerations and other matters specific to onshore wind.

Offshore wind: As part of the pre-application phase for a proposed offshore wind farm, it is proposed in EN-3 that an assessment of inter-array wake effects is recommended to take place between applicants and those of consented and operational wind farms in the pre-application stage to inform and support the consideration of potential mitigations. It is also proposed that developers should make reasonable efforts to demonstrate that they have worked to manage the impact of wake effects on other occupiers and set out non-exhaustive examples of what this could include.

It makes clear that potential approaches include explaining how the project configuration has been evolved during the design process to reduce the impact or avoid the most impactful configurations or manage the planned layout of an offshore wind turbine array to select layouts with reduced long-distance wake impact on other occupiers.

The aim of these inclusions is to provide greater clarity on how applicants can consider and potentially mitigate the impact of inter-array wake effects between new developments and nearby consented and operational wind farms, and how they could demonstrate their efforts to manage those effects, while still allowing for a variety of approaches depending on individual circumstances.

Electricity Networks Infrastructure: Great Britain's electricity network needs a once in a generation expansion to deliver new homegrown, clean energy to homes and businesses up and down the country. The proposed changes will support this new infrastructure to be built faster, whilst maintaining a rigorous process to minimise costs and impacts.

Taking a holistic approach to planning transmission infrastructure is crucial to meet the rise in demand for low carbon electricity to achieve energy security and the national net zero goal. Building on the work of the "Pathway to 2030" Holistic Network Design for offshore wind and "Beyond 2030" reports, the Centralised Strategic Network Plan (CSNP) will help reduce the overall impact of infrastructure by taking a coordinated view of both the onshore and offshore network. The CSNP will provide an independent, long-term approach out to 2050 on how the transmission network should develop to meet energy security and decarbonisation goals. It will be delivered by the National Energy System Operator (NESO) and regulated by Ofgem. The first CSNP will be delivered in 2027. Network plans will take account of environmental and community impacts, alongside deliverability, operability and economic cost, from the outset.

Energy from Waste (EfW): In the context of the NPS, EfW plants include conventional waste to energy facilities (i.e. electricity and heat generation) and Advanced Thermal Treatment and Advanced Conversion Technologies that process residual wastes to create a syngas or liquid fuel. Their primary purpose is to reduce the amount of residual waste going to landfill in accordance with the waste hierarchy, with the recovery of energy from that waste as electricity, heat, or fuel considered to be a secondary benefit that should be maximised as far as possible. The primary function of EfW plants, or similar processes, is to treat waste. They no longer benefit from CNP policy as they do not meet the definition of a clean power technology in the Clean Power 2030 Action Plan.

The changes to the HRA as a result of the material changes are discussed in Section 3.4.

1.3. Purpose and Background to the Report

This report presents the HRA methodology and findings for the HRA of the updated energy NPSs under the Conservation of Habitats and Species Regulations 2017 (as amended) and the Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended)[1] (collectively referred to as the 'Habitats Regulations' throughout this document).

The duty to undertake the HRA relates to the energy NPSs themselves as strategic plans. Each energy NPS is a 'plan', which provides a strategic framework within which subsequent 'project' level assessment will be undertaken as required, as and when individual projects are proposed.

The NPSs apply to England and Wales, including territorial waters (up to 12 nautical miles (NM) off the coast), and the Renewable Energy Zone. The NPSs do not set out specific locations for development and, therefore, the HRA is an assessment of the policy content only. As such it is high-level and strategic in nature, and it does not constitute or take the place of a project HRA for any energy infrastructure development that may come forward under the NPSs.

The function of the HRA report will be to highlight any potential risks to Habitats Sites through the text/ policy approaches of the energy NPS documents themselves. It summarises the findings for the three updated NPSs and considers the applicability of in-combination effects.

1.4. Report Structure

The Non-Technical Summary sets out the context of the report, summarises the HRA process and summarises the assessment findings. The remainder of the report is structured as follows:

- **Chapter 1** (this chapter) introduces the purpose and background to the energy NPSs and this report;
- **Chapter 2** sets out the HRA process and its application;
- **Chapter 3** describes the Screening findings;
- **Chapter 4** describes the Appropriate Assessment findings;
- **Chapter 5** describes the assessment of Alternative Solutions;
- **Chapter 6** discusses Imperative Reasons of Overriding Public Interest (IROPI);
- **Chapter 7** discusses compensation; and
- **Chapter 8** provides a conclusion to the report.

[1] Following the changes made to the Conservation of Habitats and Species Regulations 2017 (as amended) and the Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) in the UK no longer form part of the EU's Natura 2000 ecological network and now form part of a UK national site network. In this document they are referred to as Habitats Sites.

2. The Habitats Regulations Assessment Process and Application

2.1. Relevant Law and Policy

Under the Habitats Regulations an assessment is required where a plan or project may give rise to significant effects upon a Habitats Site. These sites include Special Areas of Conservation (SACs), originally designated under the Habitats Directive (92/43/EEC), and Special Protection Areas (SPAs), originally designated under the Conservation of Wild Birds Directive (79/409/EEC). These sites now form part of the UK's national site network and, going forward, will include any SACs and SPAs newly designated within the UK.

The legislation relevant to the UK's national network of Habitats Sites comprises the Conservation of Habitats and Species Regulations 2017 (as amended) and the Conservation of Offshore Marine Habitats and Species Regulation 2017 (as amended)[2], known together as the Habitats Regulations. In addition, it is a matter of UK government policy[3] that sites designated under the 1971 Ramsar Convention for their internationally important wetlands (Ramsar sites), both listed and proposed, are also considered in this process and afforded the same protection as sites within the national site network, along with potential SPAs (pSPAs) and possible SACs (pSACs). Hereafter, all the above sites are referred to as Habitats Sites. Furthermore, sites identified, or required, as compensatory measures for adverse effects on Habitats Sites are also included.

The Guidelines on the Assessment of Transboundary Impacts of Energy Developments on Natura 2000 Sites Outside the UK (2015)[4] indicates that the principles of the Habitats Regulations should be applied to any energy development where significant effects could occur for Habitats Sites outside of the UK. This is still considered to be a valid approach and, as such, the potential for transboundary effects have been considered in this HRA.

Areas of land or sea outside of the boundary of a Habitats Site may be important ecologically in supporting the populations for which the Habitats Site has been designated or classified, such that they are 'functionally linked' and should be taken account of in HRA[5].

Regulation 110 states that the Habitat Regulations shall apply in relation to an NPS as it applies to a land use plan, (with some exceptions). Regulation 105(1) states that where a land use plan:

a) is likely to have a significant effect on a Habitats Site or a European offshore marine site (either alone or in combination with other plans or projects), and
b) is not directly connected with or necessary to the management of that site,

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

It is confirmed that the five energy NPSs are not directly connected with or necessary to the management of any Habitats Sites. Therefore, there is a requirement for screening for likely significant effects and, if likely significant effects cannot be ruled out, for appropriate assessment.

Regulation 107(1) of the Habitats Regulations states that:

"If the plan-making authority is satisfied that, there being no alternative solutions, the land use plan must be given effect for imperative reasons of overriding public interest (which, subject to paragraph (2), may be of a

[2] Including amendment by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (see earlier explanation).
[3] Ministry of Housing, Communities and Local Government (2024) National Planning Policy Framework (NPPF). December 2024. Paragraph 194.
[4] DECC (2015) Guidelines on the assessment of transboundary impacts of energy developments on Natura 2000 sites outside the UK, available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/408465/transboundary_guidelines.pdf
[5] Tyldesley, D. and Chapman, C., (2013) The Habitats Regulations Assessment Handbook, March 2025 edition UK: DTA Publications Limited.

social or economic nature), it may give effect to the land use plan notwithstanding a negative assessment of the implications for the European site or the European offshore marine site (as the case may be)".

Furthermore, Regulation 109 states:

"*Where in accordance with regulation 107 a land use plan is given effect, notwithstanding a negative assessment of the implications for a European site or a European offshore marine site, the appropriate authority must secure that any necessary compensatory measures are taken to ensure that the overall coherence of Natura 2000 is protected*".

However, with reference to the underlined text above, although the process is broadly the same, it will be the coherence of the UK national site network that is protected. This amendment was made to the Habitats Regulations by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

Should the later stages of HRA be reached (outlined in Section 2.2 below) and an Annex 1 priority habitat or Annex 2 priority species (qualifying features marked by an asterisk) is going to be affected, this has an influence on the reasons permitted as imperative reasons of overriding public interest. According to Regulation 107(2) the permissible reasons are limited to those relating to:

a) human health, public safety or beneficial consequences of primary importance to the environment; or
b) any other reasons which the plan-making authority, having due regard to the opinion of the appropriate authority, considers to be imperative reasons of overriding public interest.

The 'appropriate authority' in England and Wales is now the relevant Secretary of State (SoS) or Welsh Minister, respectively. This no longer includes the European Commission. This amendment was made to the Habitats Regulations by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Other than amendments to keep all stages of the HRA process within UK auspices, no fundamental change has been made to the function and implementation of the Habitats Regulations following amendment by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

2.2. Relevant Case Law

Case law that has shaped and influenced the HRA process and that remains relevant in the UK, has been taken account of in this assessment[6]. The following guidance taken from pieces of case law is considered to be relevant with respect to its implications for plan-level HRA:

- HRA Screening stage will not rely upon avoidance or mitigation measures to draw conclusions as to whether the NPSs could result in 'likely significant effects' on Habitats Sites, with any such measures being considered at the Appropriate Assessment stage as relevant[7];
- The potential for effects on species and habitats, including those not listed as qualifying features, to result in secondary effects upon the qualifying features of Habitats Sites, including the potential for complex interactions and dependencies will be considered. In addition, the potential for offsite impacts, such as through impacts to functionally linked land, and or species and habitats located beyond the boundaries of Habitats Sites, but which may be important in supporting the ecological processes of the qualifying features, will also be taken into account[8];
- This HRA will, therefore, only consider the existence of conservation and/ or preventative measures if the expected benefits of those measures are certain at the time of the assessment. The HRA will also ensure that if a threshold approach is applied it will consider the risk of significant effects being produced even if below the threshold values to ensure that there is no adverse effect on integrity of the Habitats Sites[9].

2.3. Relevance of and Co-ordination with other HRAs

An individual HRA may be intrinsically linked to other HRAs through the need to consider in-combination effects under the Habitat Regulations and the assessment findings of plan-level HRAs when undertaking lower tier or

[6] Tyldesley, D. and Chapman, C., (2013) The Habitats Regulations Assessment Handbook, March 2025 edition UK: DTA Publications Limited. [Refer to A.2.1 Legal Consequences of leaving the EU].
[7] People over Wind, Peter Sweetman v Coillte Teoranta (April 2018)
[8] Holohan v An Bord Pleanala (November 2018)
[9] 'Coöperatie Mobilisation for the Environment and Vereniging Leefmilieu v College van gedeputeerde staten van Limburg and College van gedeputeerde staten van Gelderland (Dutch Nitrogen)' (2018)

project-level HRAs. It has been specifically flagged within EN-3 that there is a need to co-ordinate with The Crown Estate and applicants are expected to demonstrate compliance with mitigation measures identified by The Crown Estate in any plan-level HRA produced as part of its leasing rounds. This need is acknowledged here and as it makes use of existing assessment work; it can only lead to a more robust assessment that also achieves the best outcome for Habitats Sites. It is possible that under the other NPSs there will be a need to co-ordinate with other relevant plan HRAs at both plan and project stage. However, no specific HRAs are detailed in the other NPSs, apart from HRA(s) for The Crown Estate leasing rounds in EN-3.

2.4. Habitats Regulations Assessment Process Overview

It is generally accepted that the Habitats Regulations Assessment process comprises three stages[10, 11]:

- **Stage One: Screening -** the process that identifies the potential for likely effects upon a Habitats Site of a project or plan, either alone or in combination with other projects or plans and considers whether these effects are likely to be significant;
- **Stage Two: Appropriate Assessment -** the consideration of the impact on the integrity of the Habitats Site of the project or plan, either alone or in combination with other projects or plans, in respect of the Habitats Site's structure and function and its conservation objectives. Additionally, where adverse impacts are identified, an assessment of the potential mitigation of those impacts is undertaken. The assessment of the effect on integrity of the site is undertaken including the effect of such mitigation;
- **Stage Three: Derogations: allow exceptions –** application of the three legal tests to determine whether a proposal qualifies for a derogation. These are: 1) there are no feasible alternative solutions that would be less damaging or avoid damage to the Habitats Site, 2) The proposal needs to be carried out for IROPI, and 3) The necessary compensation measures can be secured.

[10] Habitats Regulations Assessment: protecting a European site (December 2023) - https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site
[11] Tyldesley, D. and Chapman, C., (2013) The Habitats Regulations Assessment Handbook, March 2025 edition UK: DTA Publications Limited.

3. HRA Screening

3.1. Scoping Habitats Sites for Screening

Prior to screening it is necessary to identify all Habitats Sites that may be affected by the project or plan. The extent of the search is determined by the methodology and scope being used and will depend on the nature of the project or plan as to how far-reaching the impacts could be.

The NPSs apply to England and Wales, including territorial waters (up to 12 nautical miles (NM) off the coast), and the Renewable Energy Zone. In addition, the SoS will examine applications for border-crossing oil and gas pipelines, for example, a pipeline that has one end in England or Wales and the other in Scotland. Therefore, as the NPSs have a national coverage, it must be assumed that any of the English and Welsh Habitats Sites, plus those in Scotland as relevant, could be affected as development could be anywhere in those locations. In the UK, including Scotland and Northern Ireland, there are presently 656 SACs and 286 SPAs[12], and 150 Ramsar sites designated across terrestrial and marine environments[13]. These are the numbers of fully designated sites. Additional proposed sites (i.e. pSPA, pSAC or pRamsar) or sites required for compensation added as a matter of UK policy, may also require assessment under HRA.

Furthermore, using the 'source-pathway-receptor' approach and considering the potential far-reaching effects from energy infrastructure developments, such as offshore windfarms or power stations, it is conceivable that mobile species from Habitats Sites in Northern Ireland and other countries may be affected. This is considered to potentially be the case for marine mammals, migratory fish, seabirds and migratory birds, many of which travel long distances to utilise other habitats, move within their natural range or during migration. Therefore, they can potentially be affected outside the boundary of the Habitats Site of which they are a qualifying feature. It is also possible for qualifying species to be affected within Habitats Sites, where these lie close to new development, or the development is expected to have long-ranging impacts. Although impacts to mobile species from offshore wind are the most likely transboundary effect, the assessment should not be limited to this, and all potential sources of transboundary effect considered for scoping in / out of an assessment. This includes sites close to the boundary of the Renewable Energy Zone, or sites in proximity to new energy development, particularly coastal sites. This could include Habitats Sites outside of the UK. As stated in Section 2.1, potential for transboundary effects has been considered.

3.2. Approach to Screening

The following stepwise approach has been taken to Stage 1 Screening of the energy NPS update:

- **Step 1**: Determine whether the plan is directly connected with or necessary to the management of the Habitats Site;
- **Step 2**: Describe the plan and describe and characterise any other plans or projects which, in combination, have the potential for having significant effects on the Habitats Site;
- **Step 3**: Identify the potential effects on the Habitats Site both alone and in combination with other plans and projects; and,
- **Step 4**: Assess the significance of any effects on Habitats Sites.

Each of these steps is considered in turn below.

In line with the precautionary principle, it is important to note that the burden of evidence is to show, on the basis of objective information, that the project or plan will have no likely significant effect (LSE) on a Habitats Site. If there may be an LSE, or there is uncertainty and an LSE cannot be ruled out, this would trigger the need for an appropriate assessment. As a result of European case law[14], irrespective of the normal English meaning of 'likely', in this statutory context a 'likely significant effect' is a 'possible significant effect', one whose

[12] https://jncc.gov.uk/ - excludes sites within the UK Overseas Territory of Gibraltar.
[13] https://jncc.gov.uk/ - excludes Overseas Territory and Crown Dependencies.
[14] Waddenzee judgement (7th September 2004) Case C-127/02

occurrence cannot be ruled out on the basis of objective evidence i.e. 'no reasonable scientific doubt remains as to the absence of such effects'[15].

The Waddenzee judgement[16] also provides further clarification regarding the term 'significant': "*where a plan or project not directly connected with or necessary to the management of a site is likely to undermine the site's conservation objectives, it must be considered likely to have a significant effect on that site. The assessment of that risk must be made in the light inter alia of the characteristics and specific environmental conditions of the site concerned by such a plan or project*".

Measures intended to avoid or reduce effects upon Habitats Sites are not taken account of during screening. This is consistent with relevant case law[17].

3.3. Step 1: Determine whether the plan is directly connected with or necessary to the management of the Habitats Site

The Energy NPSs (including the latest updates) are not directly connected with or necessary to the management of any Habitats Sites. As such, it continues to be necessary to undertake screening to determine whether the proposals are likely to have an LSE on any Habitats Sites (Steps 2 to 4 below).

3.4. Step 2: Describe the plan and describe and characterise any other plans or projects which, in combination, have the potential for having significant effects on the Habitats Site

3.4.1. Purpose and contents of the Energy NPSs

The updated NPSs continue to set out national policy for energy infrastructure in England and Wales. They form the framework for development consent decisions on applications for new energy infrastructure by the SoS. It should be noted that not all energy projects will be covered by the NPSs, as they relate only to nationally significant infrastructure projects (NSIPs). The Planning Act 2008[18] sets out the thresholds for NSIPs in the energy sector. The Act and relevant amendments, define the following forms of energy infrastructure as being an NSIP dependent on meeting the thresholds set out in the Planning Act 2008:

- **Electricity generating stations** – this includes onshore generating stations generating more than 50 megawatts (MW) in England and 350 MW in Wales, (but not onshore wind in Wales or electricity storage in England and Wales, except hydroelectric storage). When the Infrastructure Planning (Onshore Wind and Solar Generation) Order 2025 takes effect, proposed for 31 December 2025, this will include onshore wind and solar generating stations in England only where they generate more than 100MW. It also includes offshore generating stations generating more than 100 MW offshore in territorial waters adjacent to England and within the English part of the Renewable Energy Zone, and those generating more than 350 MW in territorial waters adjacent to Wales and the Welsh part of the Renewable Energy Zone (the Welsh Zone as defined by section 158 of the Government of Wales Act 2006);
- **Large gas reception and liquefied natural gas (LNG) facilities and underground gas storage facilities;**
- **Cross-country gas and oil pipelines and Gas Transporter pipelines;**
- **Above ground electric lines at or above 132kV.**

Updated EN-1 continues to set out the role and scope of the NPSs in the planning/ consenting arena, geographical coverage, the policy and regulatory framework, the need for various types of energy infrastructure, the assessment principles when considering NSIP applications, generic impacts that could occur and mitigation measures relevant to all types of energy infrastructure. Updated EN-1 continues to state that

[15] Tyldesley, D. and Chapman, C., (2013) The Habitats Regulations Assessment Handbook, March 2025 edition UK: DTA Publications Limited.
[16] Waddenzee judgement (7th September 2004) Case C-127/02
[17] People over Wind v Coillte Teoranta (12th April 2018) Case C-323/17
[18] Part 3 Planning Act 2008

there is an urgent need for new and low carbon electricity NSIPs to be brought forwards as soon as possible, given the crucial role of electricity as the UK decarbonises its economy.

Several different types of electricity infrastructure will be needed to deliver the UK's energy objectives, with additional generating plants, electricity storage, interconnectors and electricity networks all having a role. In addition to new generating plants, storage and interconnection can provide flexibility, meaning that less output is wasted, as it can either be stored or exported when there is excess production. They can also supply electricity when domestic demand is higher than generation, supporting security of supply, and reduce the need for new network infrastructure. However, neither storage nor interconnection replace the need for new generating capacity. Understandably, electricity networks are needed to connect the output of other types of electricity infrastructure with consumers and each other, playing a key role in helping to meet the substantial increase in demand expected over the coming decades.

A wide range of generating technologies are needed in order to provide security of supply by reducing reliance on imported oil and gas, avoiding concentration risk and reliance on one fuel or generation type; to provide an affordable and reliable system; and, to ensure the system is net zero consistent, maintaining the options required to deliver under a wide range of demand, decarbonisation and technology scenarios.

The known technologies included within the scope of updated EN-1 includes the following. A combination of many or all of which is required for Clean Power 2030, energy security and net zero:

- Offshore Wind (including floating wind)
- Onshore Wind
- Solar photovoltaics (PV)
- Wave
- Tidal Range
- Tidal Stream
- Pumped Hydro
- Energy from Waste (EfW) (including Advanced Conversion Technologies (ACTs)), with or without Carbon Capture and Storage (CCS)
- Biomass with or without CCS
- Natural Gas with or without CCS
- Low carbon hydrogen
- Large-scale nuclear, Small Modular Reactors (SMR), Advanced Modular Reactors (AMR) and fusion power plants
- Geothermal

The role of combustion power stations is set out in updated EN-1, which states that "*most forms of combustion power also produce residual emissions of greenhouse gases, and where this is the case, their use will need to be limited over time unless they can decarbonise. Whilst we will continue to rely on unabated gas to ensure security of supply, we will be driving the deployment of low carbon technologies. All commercial scale (at or over 300 MW) combustion power stations fuelled by gas, coal, oil or biomass have to be constructed Carbon Capture Ready (CCR)*".

Note that hydrogen and CCS do not have specific NPSs and are primarily covered by updated EN-1. EN-2 states that the guidance in the NPS has been drafted in respect of natural gas-fired electricity generating infrastructure but may also be important and relevant to hydrogen gas-fired electricity generating infrastructure. EN-2 and updated EN-3 also refer to the potential for CCS alongside combustion technologies. In order to ensure a thorough assessment of all potential technologies has been undertaken, hydrogen and CCS have been considered in their own right in this HRA.

EN-2 covers onshore natural gas-fired electricity generating infrastructure. It states that natural gas-fired generating stations can be configured to produce Combined Heat and Power (CHP) and be CCR and/ or have CCS technology applied relates to natural gas-fired generating stations and defers to the policy set out in updated EN-1. Note that the provisions of EN-2 have not changed.

Geothermal is mentioned in updated EN-1 in relation to 'heat networks' as an alternative to new gas infrastructure. Heat networks are a crucial technology for decarbonising the UK's heating, particularly in dense urban areas. By using recovered heat from industry, geothermal energy and power generation, and accessing sources of ambient heat, heat networks can reduce overall production requirements for gas, as well as offering a way of storing and balancing energy needs overall. In parts of the UK, heat networks will represent a lower cost route to decarbonisation than alternatives such as repurposing the gas network for low-carbon hydrogen. Geothermal technologies (and heat networks) are not specifically covered by an NPS and are considered unlikely to result in an NSIP, therefore, they are presently excluded from the assessment.

Updated EN-3 covers the following types of nationally significant renewable electricity generation stations:

- Energy from biomass and/or waste, including mixed waste containing non-renewable fractions
- Pumped hydro storage
- Solar PV
- Offshore wind
- Tidal stream
- Onshore wind (in England only) – new technology added as material change

EN-4 relates primarily to the infrastructure to import and distribute gas and oil, including:

- Underground natural gas storage and LNG facilities
- Gas reception facilities
- Gas transporter pipelines (onshore)
- Pipelines (natural gas or oil) over 16 km/10 miles long

New hydrogen pipelines and underground storage for hydrogen (in both cases whether or not blended with natural gas) will require consent from the SoS where they meet the thresholds set out in EN-4. The guidance in EN-4 has been drafted in respect of, and has effect only in relation to, natural gas infrastructure. It does not have effect for hydrogen infrastructure but may be part of other matters which the SoS thinks are important and relevant to their decision on applications for hydrogen infrastructure, in which case they would need to take it into account. Note is made that the provisions of EN-4 have not changed.

Updated EN-5 relates to electricity networks and can be generally divided into two main elements: transmission systems (the long-distance transfer of electricity through 400 kV and 275 kV lines); and distribution systems (lower voltage lines from 132 kV to 230 kV from transmission substations to the end-user, which can either be carried on towers/monopoles or underground) and associated infrastructure, e.g. substations and converter stations.

Updated EN-5 covers above-ground electricity lines:

- whose nominal voltage is expected to be 132 kV or above (other than a 132 kV line associated with the construction or extension of a devolved Welsh generating station);
- whose length is greater than 2 km;
- that are not a replacement line falling within Section 16 (3) (ab) of the Planning 2008 Act; and
- that are not otherwise exempted for reasons set out in Sections 16 (3) (b) and (c), (3A) and (3B) of the Planning 2008 Act.

NPS Approach and Policy Provisions

Although the NPSs are policy documents, they do not include specific individual policies that can be assessed for their potential to have LSEs on Habitats Sites. However, there is clear guidance on what should be considered by the applicant and advice to the SoS with regard to consenting such projects. The general structure set out in updated EN-1 in discussing generic impacts, shown below in Figure 3-1, is mirrored within all NPSs. Within EN-2 to EN-5 information under these headings are given for each potential impact arising from a technology and, therefore, provides comprehensive coverage of assessment requirements and what will be considered and given weight during consenting. Where relevant, additional introductory information is provided regards the Government's expectations and requirements, to which scale of technology the NPS is applicable, the consenting process (e.g. as for Offshore wind within updated EN-1), factors influencing site

selection and design by applicant and technical considerations for the SoS. As a result, the NPS are detailed and robust policy documents.

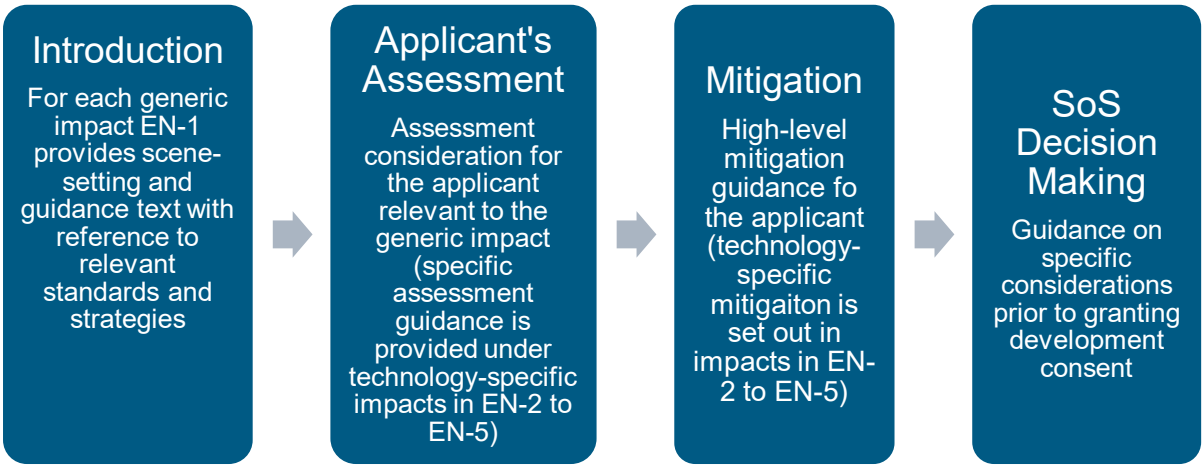

Figure 3-1 Structure of technology-specific policy information provided in the Energy NPSs

Taking a very simplistic view, development could result in adverse effects on Habitats Sites via the effect pathways identified, both alone and in-combination with other plans and projects. This is examined in more detail in Section 3.5 below. However, it is important to note that the NPS text affords the natural environment significant protection in the approach and requirements outlined, in the advice to applicants and to the SoS in decision making. These commitments, which are allied with current energy and net zero strategies, go some way to ensure that adequate planning and assessment support the consenting processes. Furthermore, the NPS encourage nature-based design, application of biodiversity and environmental net gain and champion a holistic approach, particularly where this will streamline applications and ultimately provide a better outcome for the natural environment. The delivery of biodiversity net gain and marine net gain could be provided by a package of measures that also meets the requirements for avoiding or mitigating impacts to Habitats Sites[19].

There are four key elements (as drawn out in the Assessment of Sustainability (AoS)) identified within updated EN-1 that help to protect Habitats Sites:

- Proposals need to be accompanied by an Environmental Statement (ES) (under the Infrastructure Planning Regulations 2017[20]), which describes the likely significant effects of the proposal on the environment, including specific reference to biodiversity. Through this legal requirement for an ES, it is ensured that the direct, indirect, secondary, transboundary and short to long-term effects of the development on biodiversity will be considered, as these are requirements in The Regulations. Where development is subject to EIA, updated EN-1 continues to suggest that the ES should clearly set out any effects on designated sites of ecological or geological conservation importance, on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity, including irreplaceable habitats;
- Updated EN-1 continues to outline mitigation measures that are likely to reduce direct and indirect effects on Habitats Sites;
- Updated EN-1 continues to recognise that impacts to Habitats Sites might occur and information to allow effective consideration of the must be provided without prejudice, including an assessment of alternative solutions, a case for IROPI and consideration of whether suitable compensation could be provided;
- Updated EN-1 continues to advise applicants to seek the views of the Statutory Nature Conservation Body (SNCB) and Defra/ Welsh Government with regard to the proposed compensation plan to ensure the development will not hinder the achievement of the conservation objectives for the Habitats Site;

[19] It should be noted that delivering BNG does not remove the need to meet the requirements to protect the integrity of the national site network and if impact on integrity cannot be avoided then losses and compensation would be bespoke and removed from the BNG process. Refer to The Statutory Biodiversity Metric User Guide. Defra, July 2024.
[20] The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017

- Updated EN-1 notes that the OWEIP contains a commitment to introduce strategic compensatory measures for offshore renewables NSIPs, to offset environmental effects but also to reduce delays for individual projects.

Section 5.4 'Biodiversity and Geological Conservation' of updated EN-1 continues to specifically include reference to the Habitats Regulations and the protection afforded to Habitats Sites. It also mentions the commitment to introduce strategic compensatory measures for offshore renewable NSIPs, to offset environmental effects and reduce delays for individual projects in the Offshore Wind Environmental Improvement Package (OWEIP) as set out in updated EN-3, which has a bearing on the HRA process with respect to implementation of the derogations at Stage 3.

Updated EN-1 (Section 5.4.50) continues to state that in relation to the Habitats Regulations and SoS decision-making:

"*The Secretary of State must consider whether the project is likely to have a significant effect on a protected site which is part of the National Site Network (a habitat site), a protected marine site, or on any site to which the same protection is applied as a matter of policy, either alone or in combination with other plans or projects*".

In addition, the NPSs continue to include a number of provisions which ensure that relevant legislation, policy and strategy targets are met. Key provisions within the NPSs with respect to the natural environment and HRA are outlined in Table 3-1 below, alongside an assessment of whether the provision will help to protect Habitats Sites through ensuring robust assessment, which may indirectly contribute to avoiding adverse effects on site integrity by virtue of maintaining the site's conservation objectives. The general text stating the fact that a HRA has been undertaken and its broad scope, as continues to be outlined in Section 1.7 of updated EN-1 and subsequently the technology-specific NPSs, is excluded from Table 3-1 as this text does not offer any protection to Habitats Sites.

For the reasons outlined above, it is concluded that the NPSs continue to recognise the importance of Habitats Sites and provide a framework for their protection through ensuring robust assessment and application of the mitigation hierarchy.

Table 3-1: Policy Provisions Protecting Habitats Sites

NPS	Policy Provision Text	Will the provision help with the HRA process?
Updated EN-1	Applicants can request[21] and agree 'Evidence Plans' with SNCBs, which is a way to agree and record upfront the information the applicant needs to supply with its application, so that the HRA can be efficiently carried out.	Yes. Forward planning and early consultation and collaboration with SNCBs will ensure HRA is approached in the best way and likely to achieve 'not adverse effects on site integrity'.
Updated EN-1	If, during the pre-application stage, the SNCB indicate that the proposed development is likely to adversely impact the integrity of a Habitats Site, the applicant must include with their application such information as may reasonably be required to assess a potential derogation under the Habitats Regulations. This is also required should the SNCB give such an indication at a later stage in the development consent process.	No. Although in itself not contributing to avoiding harm, at the request of the SNCB, the applicant is to provide derogations information. This would ideally be at the pre-application stage, but there is scope for later provision of such information on a 'without prejudice' basis.
Updated EN-1	All Marine Protected Areas (MPAs) given equal consideration regardless of the legislation they were designated under. This is because all sites contribute to the network of MPAs and, therefore, to overall network integrity.	Yes. This policy text considers the MPAs as a network of sites. Although HRA is not relevant to all the MPAs, this approach is in the spirit of HRA in considering the

[21] Note that Evidence Plans are not mandatory.

NPS	Policy Provision Text	Will the provision help with the HRA process?
		coherence and integrity of the network of sites.
EN-2	It is important to consider environmental impacts and mitigation measures holistically across terrestrial and marine environments. This is particularly important when considering new facilities as the siting of this infrastructure will likely be within already constrained and busy estuarine environments.	Yes. Taking an integrated/ holistic approach to considering environmental impacts and mitigation will assist with undertaking HRA and achievement of no adverse effects.
Updated EN-3	Future leasing rounds may continue to be supported by separate plan level HRA or, in appropriate cases, may be the subject of a coordinated approach to the HRA, where there is overlap between the activities of more than one competent authority in relation to offshore development.	Yes. There is a need to comply with the terms and conditions of the permission granted, which is informed by an HRA.
Updated EN-3	Applicants are expected to demonstrate compliance with mitigation measures identified by The Crown Estate in any plan-level HRA produced as part of its leasing rounds and with any future statutory requirements, guidance or mitigation measures developed to deliver the commitments in the OWEIP.	Yes. There is a need to comply with the terms and conditions of the permission granted, which is informed by existing and associated HRA.
Updated EN-3	Repowering[22] will require EIA and HRA.	Yes. Commits repowering projects to undertaking HRA.
Updated EN-3	Applicants have regard to the specific ecological and biodiversity considerations that relate to proposed offshore renewable energy infrastructure developments, namely: fish, intertidal and subtidal seabed habitats and species, marine mammals, birds and wider ecosystem impacts and interactions, and other relevant protected migratory species.	Yes. This will help to capture impacts on qualifying species, functionally linked land/ habitats and processes supporting habitats of qualifying species within a HRA.
Updated EN-3	Introduction of the OWEIP includes the following measures to: • revise the Habitats Regulations and Marine Conservation Zone environmental assessment processes for offshore wind to facilitate the delivery of compensation measures whilst maintaining valued protection for the marine environment; • facilitate the delivery of strategic environmental compensation measures to offset environmental effects and reduce delays to projects, including development of a library of compensation measures, through	Yes. The OWEIP seeks to streamline the consenting process and introduces the COWSC, MRF and a set of standards (OWES) that will help ensure that the natural environment is protected whilst offshore wind is being delivered. Taking a strategic approach that enables co-ordinated and potentially more effective mitigation/ compensation for Habitats Sites.

[22] It is the process of replacing older technology for newer technology that either has greater capacity or more efficiency, which results in a net increase of power generated. Could apply to power stations, wind turbines, etc.

NPS	Policy Provision Text	Will the provision help with the HRA process?
	the Collaboration on Offshore Wind Strategic Compensation (COWSC) programme; • implement an industry-funded Marine Recovery Fund (MRF) or funds, that developers can choose to pay into to meet their environmental compensation obligations. It is anticipated that two funds will operate in the UK – one for projects consented in England, Wales and Northern Ireland, and one for projects consented in Scotland; • develop Offshore Wind Environmental Standards (OWES) to reduce environmental impacts at the point of project design of wind farms and offshore transmission infrastructure, providing greater certainty and reducing delays in the consenting process; • take steps to better manage marine noise from offshore wind deployment; and • develop a strategic approach to environmental monitoring.	
Updated EN-3	If, during the pre-application stage, SNCBs indicate that the proposed development is likely to adversely impact a protected site, the applicant should include with their application such information as may reasonably be required to assess potential derogations under the Habitats Regulations or the Marine and Coastal Access Act 2009. Where such an indication is given later in the development consent process, the applicant should share this information as soon as reasonably practical. This information includes: • assessment of alternative solutions, showing the relevant tests on alternatives have been met; • a case showing that the relevant tests for IROPI have been met; and • appropriate securable environmental compensation.	Yes. To be provided on a 'without prejudice' basis but also reinforces the HRA derogations process.
Updated EN-3	Before submitting an application, applicants should seek the views of the SNCB and Defra, as to the suitability, securability and effectiveness of the compensation plan to ensure that the overall coherence of the National Site Network for the impacted SAC/SPA/MCZ feature is protected.	Yes. Engagement with SNCBs and Defra will ensure that appropriate advice is obtained with respect to identifying adverse effects and achieving the aims of the Habitats Regulations.
Updated EN-3	Applicant should develop a Site Integrity Plan (SIP) or alternative assessment for projects in English and Welsh waters to allow the cumulative impacts of underwater noise to be reviewed	Yes. Consideration of cumulative impacts will be required as part of the in-combination

NPS	Policy Provision Text	Will the provision help with the HRA process?
	closer to the construction date, when there is more certainty in other plans and projects.	assessment at either Stage 1 Screening or Stage 2 Appropriate Assessment.
EN-4	In relation to liquified natural gas import facilities it is stressed that it is important to consider environmental impacts and mitigation measures holistically across terrestrial and marine environments.	Yes. Taking an integrated/ holistic approach to considering environmental impacts and mitigation will assist with undertaking HRA and achievement of no adverse effects.
EN-4	Where relevant, applicants should undertake modelling to predict and understand both dredging and construction impacts on hydrology, sediment transport and geomorphology, as well as direct habitat loss, and impacts on species from increased underwater noise.	No. But this requirement will facilitate assessment work and help to establish potential effects to be assessed during HRA.
EN-4	With respect to choosing a [gas and oil] pipeline route, applicants should seek to avoid or minimise adverse effects [from usage below the surface]. Additional survey work may be required to support environmental assessments depending on evidence available and findings of desktop studies.	No. But the environmental assessment work may include HRA and there is a requirement to avoid or minimise effects, which would contribute to achieving no adverse effects on site integrity.
Updated EN-5	Adverse impacts on MPAs have caused consenting delays, and in some cases a need for compensatory measures under the Conservation of Habitats and Species Regulations 2017 (as amended) and the Conservation of Offshore Habitats and Species Regulations 2017, or measures of equivalent environmental benefit under the Marine and Coastal Access Act 2009. Therefore, applicants should consider and address routing and avoidance/ minimisation of environmental impacts both onshore and offshore at an early stage in the development process. Applicants should also facilitate delivery of strategic compensation measures where appropriate (see updated EN-3).	Yes. Commits to early identification and minimisation of impacts in relation to electrical networks infrastructure, which will help in achieving no adverse effects during HRA.

3.4.2. Clean Power 2030

The Government published the Clean Power 2030 Action Plan in December 2024, which sets out pathways for meeting the 2030 Clean Power target and includes capacity targets for the energy infrastructure required. In the Clean Power 2030 Action Plan, Government committed to updating the Energy NPSs in 2025 to reflect the needs of Clean Power 2030, improving policy certainty for developers and examining authorities. The policy narrative through updated EN-1 has been updated to bring Clean Power 2030 front and centre as the primary policy that the NPSs enable. It points towards the Clean Power 2030 Action Plan, which contains the capacity ranges for technologies in 2030 that the NPSs support. Successfully delivering Clean Power 2030 will require rapid deployment of new clean energy capacity. Delivering Clean Power 2030 also paves the way to decarbonising the wider economy by 2050, and focussing the narrative on the planning system will enable the Government to meet those capacity ranges by ensuring developers bring forward relevant projects.

Projects relevant for Clean Power 2030 can be deemed CNP, with a presumption in favour of consent. This means that EfW (combustion) projects will no longer benefit from CNP policy, as they do not meet the definition of a clean power technology in the Clean Power 2030 Action Plan.

The Clean Power 2030 Action Plan sets out infrastructure deployment pathways and generation capacity ranges that will ensure by 2030 clean sources produce at least 95% of Great Britain's generation, meeting the sixth Carbon Budget advice and pushing the country towards net zero by 2050.

Clean Power 2030 presents an opportunity to deliver clean power in a nature positive way, integrating energy and environmental needs, and building natural 'infrastructure' at the same time as building new energy infrastructure, creating resilience in both systems. The addition of Clean Power 2023 as a central policy to the NPSs will not significantly amend the HRA assessment and may work in favour of protecting Habitats Sites. The Government's Clean Power 2030 Action Plan states clear objectives as far as avoiding significant environmental impacts for low carbon energy infrastructure. Such objectives include 'ensuring protection of nature is embedded into the delivery of Clean Power 2030' and 'new energy infrastructure should be built in a way that protects the natural environment by following a "mitigation hierarchy" to do what is possible to avoid damage to nature, and then minimising, restoring and delivering compensation when damage is impossible to avoid.

3.4.3. Critical National Priority infrastructure approach

CNP policy was introduced in the previous 2024 amendments to the NPSs. The policy allows for the importance of low-carbon infrastructure to be considered during the decision-making process by the Secretary of State. The policy means that for qualifying infrastructure projects, where residual impacts remain after the mitigation hierarchy has been applied, it is unlikely that consent will be refused on the basis of these residual impacts.

Government has set out in the NPSs the importance of CNP infrastructure and defines what low-carbon infrastructure means. It can be broadly categorised as follows:

- All onshore and offshore electricity generation that does not involve fossil fuel combustion, as well as fossil-fuel fired generation which is carbon capture ready;
- All power lines (electricity grid infrastructure) within the scope of EN-3, including network reinforcement and upgrade works. All new grid projects have a role in connecting low carbon infrastructure to the National Electricity Transmission System and so this is not limited to specific technologies;
- Technologies, fuels, pipelines and storage infrastructure which fits within the normal definition of "low carbon", such as hydrogen distribution and carbon dioxide distribution; and
- Lifetime extensions of nationally significant low carbon infrastructure and repowering of projects.

3.4.4. HRA Implications of Other Material Changes

In addition to Clean Power 2030 and as set out in Section 1.1 the updated EN-1, EN-3 and EN-5 also include the addition of onshore wind, the assessment of inter-array effects in relation to offshore wind, faster delivery of electricity networks infrastructure and endorsement of the CSNP.

The addition of onshore wind just increases the variety of energy infrastructure that could come forward under the updated NPSs but is not considered to result in any changes to the HRA.

The assessment of inter-array effects for offshore wind will allow a considered and strategic approach to be taken to the planning and delivery of offshore wind that should make it easier to appropriately mitigate or compensate for any adverse effects. This could provide benefits for Habitats Sites as a less piecemeal approach will be taken to addressing any impacts.

Speeding up the delivery of electricity networks infrastructure (and indeed all low carbon energy infrastructure) will likely increase the number of on-going energy infrastructure projects at any one time. This could result in the need for more detailed assessment of LSEs in-combination with other plans and projects. However, if assessed and addressed as dictated by the HRA process, this will not pose any additional constraint to development.

The implementation of the CSNP by the NESO will provide a strategic focus to the delivery of the energy infrastructure we so readily need. How this is actually delivered may have a bearing on the protection of Habitats Sites, which cannot be assessed at this time. A strategic view of what is needed where, may reduce the amount of land take, minimising the number and length of connections and pipelines, creating centres of energy generation as close as possible to centres of energy use. Provided the CSNP does take account of environmental impacts, there should not be any additional risk to Habitats Sites.

EfW (combustion) projects no longer benefit from CNP policy as they do not meet the definition of a clean power technology in the Clean Power 2030 Action Plan. This is beneficial for Habitats Sites as such development, if necessary, will need to proceed through the derogations in the usual way and provide an individual project-level IROPI case, which may result in the refusal of consent for a particular application if the legal tests are not met.

3.4.5. Plans and projects with potential for in-combination effects

The energy NPSs could interact with other plans and projects to result in in-combination effects, as explained further in Section 3.5 below. Given the high-level nature of the NPSs, the consideration of in-combination effects has assumed development of any type supported in the Energy NPSs could come forward. Table 3-4 (in Section 3.6.1) lists the types of plan and project that have potential for in-combination effects with development of energy infrastructure. The relevant plans will be dependent on the location and scale of any infrastructure coming forward. The scope of an in-combination assessment is largely set by the Habitats Sites with regard to identifying other plans and projects being assessed for potential impacts upon them and not based on any fixed geographical distance or area. This allows for capture of potential far-reaching effects, as often identified via the source-pathway-receptor approach and in relation to migratory and mobile qualifying species.

Given the high-level and strategic nature of the HRA for the updated energy NPSs it is not possible to undertake an in-combination assessment at this time; however, the approach is discussed for information and will be applicable (reviewed on a case-by-case basis) to lower tier and project HRAs associated with the NPSs.

3.5. Step 3: Identify the potential effects on the Habitats Site both alone and, where necessary, in combination with other plans and projects

In HRA, it is usual to consider construction, operation and decommissioning effects separately, where they are applicable. Although potential effects throughout construction and operation are different, given the strategic nature of this assessment and the high-level potential effects being considered, they have not been dealt with separately within the assessment process. It is presumed that, using the precautionary principle and on a worst-case scenario basis, the effects of decommissioning will be similar to those of construction and, therefore, also covered by the effects considered.

It is acknowledged that there will be infrastructure-specific effects that may not be identified until the project stage, due to the high-level nature of the assessment. Where possible, potential specific effects have been flagged, but detailed consideration of effects will only be made at project-level HRA for individual proposed infrastructure developments.

The updated energy NPSs do not contain specific policies, site proposals or objectives that could strictly be assessed in their own right. However, the NPSs allow for and facilitate development of a nature and scale that has potential to impact Habitats Sites.

In line with accepted practice, it is appropriate to undertake a targeted ‘source-pathway-receptor’ approach to identifying sites for screening. This allows for the movement of mobile/ migratory species such as birds, fish and marine mammals and their potential to interact with infrastructure to be taken into account. Energy infrastructure development, as facilitated by the NPSs, could occur anywhere within England and Wales, thereby potentially affecting any of the Habitats Sites across the UK and more widely across Europe, depending on the location of development. As such, detailed assessment of particular sources, pathways and receptors is not possible. However, this screening identifies key potential effect pathways associated with the types of energy development set out in the NPSs, which can be used to inform the scope of project-level HRAs.

The various types of energy infrastructure development that could arise as a result of the NPSs, possible activities associated with them and the potential resulting effects on Habitats Sites are set out in Table 3-2. For each energy technology, this identifies the potential ‘source’ (the type of development and typical resultant activities during construction, operation and decommissioning of infrastructure) and the ‘pathway’ (type of effect) that these activities could give rise to. Table 3-2 notes which NPS sets out detail for each technology (note that all are also included in updated EN-1, as it is an overarching document). Appendix A sets out more detail on how the likely activities arising from each energy infrastructure technology may give rise to the effects identified.

The relevant receptors (the Habitats Sites, species and habitats that will be affected) can then be identified at the project level. The technologies or effects identified in Table 3-2 may only affect certain Habitats Sites. In particular, coastal and marine technologies, namely offshore wind and tidal stream (both set out in updated EN-3), are most likely to affect coastal and marine Habitats Sites. In addition, power stations, including those fired by hydrogen (updated EN-1), natural gas (updated EN-2), biomass and waste (updated EN-3) usually utilise large amounts of water, and therefore, will be situated on the coast or next to another large body of water, potentially affecting coastal and marine Habitats Sites, as well as onshore Habitats Sites. Coastal and marine energy infrastructure may also be more likely to affect Habitats Sites in other countries, due to the proximity of these sites with other countries and given that some marine species are highly mobile and move between territorial waters of different countries. However, effects depend on particular species and populations, including factors such as how mobile they are, their ecology and migration routes, which cannot be known until particular sites are under consideration at the project stage. In addition, coastal and marine sites may be more likely to result in cross-boundary effects. For example, Dogger Bank SAC is the largest sandbank in UK waters and extends into both Dutch and German waters; therefore, proposals for any development affecting this site would need to be consulted on with authorities in neighbouring countries.

Nevertheless, potential for effects on the marine and coastal environment are not limited to projects in this area. Inland projects could affect coastal and marine Habitats Sites due to proximity or if they are linked, for example by a watercourse. Furthermore, highly mobile qualifying species such as birds or bats can utilise land and/ or connective habitats outside of a Habitats Site that is important to the population and necessary for their survival. This land is considered to be ‘functionally linked’ to the Habitats Site and may provide alternative feeding areas or important commuting and dispersal routes. Similarly, cross-boundary effects are not limited to coastal and marine sites and are particularly likely to occur if the Habitats Site affected is designated for migratory species. Inland waterbodies and upland habitats play important roles in supporting waders and waterfowl found on the coast for some of the year on passage, over winter and during the breeding season.

Table 3-2: Potential impacts that could arise as a result of the types of development set out in the NPSs

Type of energy infrastructure development	Assumptions	Possible Activities (construction, operation and decommissioning)	Possible Impact Pathways	Likely Significant Effects
Updated EN-1: Low-carbon hydrogen	Hydrogen production and the infrastructure needed is uncertain at this stage. Production, conversion to electricity, storage and transport need to be considered. Effects listed relate to clean hydrogen.	Construction activities Vehicle and personnel movements Physical presence of site (including storage sites) Combustion of materials Water abstraction and discharge Changes to drainage Decommissioning and restoration activities	**Construction/ decommissioning:** Land take Reduction in air quality Change in water quality Changes in water quantity/ flow/ drainage Noise, light, vibrations and visual disturbance Introduction of invasive non-native species	**Construction/ decommissioning:** Habitat loss/ fragmentation/ degradation Species loss/ population fragmentation Smothering/ enrichment of habitats Species disturbance impacts Out-competition or disease among native species/ change in vegetation composition
			Operation: Reduction in air quality Changes in water quality Changes in water quantity/ flow/ drainage Noise, light, vibrations and visual disturbance Introduction of invasive non-native species	**Operation:** Habitat degradation Species disturbance impacts Species displacement from feeding areas, migratory routes, breeding sites or other sites used for roosting, moulting or resting etc. Loss/ displacement of prey species Loss of feeding/ foraging areas Out-competition or disease among native species/ change in vegetation composition
EN-1: Nuclear (large-scale nuclear, SMR,	Radioactive waste would be transported and stored off-site.	Construction activities Vehicle and personnel movements	**Construction/ decommissioning:** Land take Reduction in air quality	**Construction/ decommissioning:** Habitat loss/ fragmentation/ degradation Species loss / population fragmentation

Type of energy infrastructure development	Assumptions	Possible Activities (construction, operation and decommissioning)	Possible Impact Pathways	Likely Significant Effects
AMR and fusion power plants)	Due to the large volume of water for cooling required, nuclear power stations are likely to be coastal. Safety systems in place in the designs of new nuclear power stations and compliance with the UK's robust legislative and regulatory regime mean that the risk of radiological release from nuclear power (both during normal operation and as a result of an unplanned release) is very small.	Physical presence of site (including storage sites) Water abstraction and discharge Changes to drainage Decommissioning and restoration activities	Change in water quality/ temperature Changes in water quantity/ flow/ drainage Noise, light, vibrations and visual disturbance (including underwater) Introduction of invasive non-native species Radiation	Smothering/ enrichment of habitats Species disturbance impacts Out-competition or disease among native species/ change in vegetation composition
			Operation: Land contamination Change in water quality/ temperature (specifically in the marine environment) Changes in water quantity/ flow/ drainage Noise, light, vibrations and visual disturbance (including underwater) Introduction of invasive non-native species Impingement & entrainment of fish Coastal change/ change in coastal processes	**Operation:** Habitat degradation Species loss/ population fragmentation Species disturbance impacts Species displacement from feeding areas, migratory routes, breeding sites or other sites used for roosting, moulting or resting etc. Loss/ displacement of prey species Loss of feeding/ foraging areas Out-competition or disease among native species/ change in vegetation composition
Updated EN-1: Carbon Capture and Storage (CCS)	Carbon capture would be part of a power station, although retrofitting carbon capture technologies	Construction activities Vehicle and personnel movements Physical presence of site	**Construction/ decommissioning:** Land take Reduction in air quality Change in water quality	**Construction/ decommissioning:** Habitat loss/ fragmentation/ degradation Species loss/ population fragmentation Smothering/ enrichment of habitats

Type of energy infrastructure development	Assumptions	Possible Activities (construction, operation and decommissioning)	Possible Impact Pathways	Likely Significant Effects
	may require additional land take[23]. Transport of carbon would be by pipeline or ship. Captured carbon will be stored offshore.	Water abstraction and discharge Changes to drainage	Changes in water quantity/ flow/ drainage Noise, light, vibrations and visual disturbance Introduction of invasive non-native species	Species disturbance impacts Out-competition or disease among native species/ change in vegetation composition
			Operation: Land contamination Change in water quality Noise, light, vibrations and visual disturbance (including underwater) Impingement & entrainment of fish	**Operation:** Habitat degradation Species loss/ population fragmentation Species disturbance impacts Species displacement from feeding areas, migratory routes, breeding sites or other sites used for roosting, moulting or resting, etc. Loss/ displacement of prey species Loss of feeding/ foraging areas
EN-2: Natural Gas	>50 MW capacity in England and >350 MW capacity in Wales. May include CHP	Construction activities Vehicle and personnel movements Physical presence of site Combustion of materials	**Construction/ decommissioning:** Land take Reduction in air quality Change in water quality Changes in water quantity/ flow/ drainage	**Construction/ decommissioning:** Habitat loss/ fragmentation/ degradation Species loss/ population fragmentation Smothering/ enrichment of habitats Species disturbance impacts

[23] EN-1 states that the carbon capture plant required for a new build power CCS plant can be included as associated development in the application for development consent for the relevant thermal generating station, and will then be considered as part of that application. However, in order to be precautionary and recognise that applications for retrofitting CCS may come forward, the carbon capture plant has been considered here.

Type of energy infrastructure development	Assumptions	Possible Activities (construction, operation and decommissioning)	Possible Impact Pathways	Likely Significant Effects
	Can be CCR or have CCS technology applied Access to water for cooling and possibly combined cycle gas turbines.	Water abstraction and discharge Changes to drainage Decommissioning and restoration activities	Noise, light, vibrations and visual disturbance Introduction of invasive non-native species	Out-competition or disease among native species/ change in vegetation composition
			Operation: Land contamination Reduction in air quality Change in water quality/ temperature Changes in water quantity/ flow/ drainage Noise, light, vibrations and visual disturbance Introduction of invasive non-native species Impingement & entrainment of fish Climate change effects on habitats and species	**Operation:** Habitat degradation Species loss/ population fragmentation Smothering/ enrichment of habitats Species disturbance impacts Out-competition or disease among native species/ change in vegetation composition Loss/ displacement of prey species
Updated EN-3: Energy from biomass and/ or waste (including mixed waste containing non-renewable fractions)	>50 MW in England >350 MW in Wales >300 MW – requires CCR Requires imported biomass or proximity to sources of waste Access to water for cooling	Construction activities Vehicle and personnel movements Physical presence of site Combustion of materials Water abstraction and discharge Changes to drainage	**Construction/ decommissioning:** Land take Reduction in air quality Change in water quality/ temperature Changes in water quantity/ flow/ drainage Noise, light, vibrations and visual disturbance	**Construction/ decommissioning:** Habitat loss/ fragmentation/ degradation Species loss/ population fragmentation Species disturbance impacts Out-competition or disease among native species/ change in habitat composition

Type of energy infrastructure development	Assumptions	Possible Activities (construction, operation and decommissioning)	Possible Impact Pathways	Likely Significant Effects
		Decommissioning and restoration activities	Introduction of invasive non-native species	
			Operation: Reduction in air quality Change in water quality/ temperature Noise, light, vibrations and visual disturbance	**Operation:** Habitat degradation Species disturbance impacts
Updated EN-3: Pumped Hydro Storage	> 50 MW in England >350 MW in Wales	Construction activities Physical presence of site Water abstraction and discharge Decommissioning and restoration activities	**Construction/ decommissioning:** Land take Changes in water quality Changes in water quantity/ flow/ drainage Noise, light, vibrations and visual disturbance Introduction of invasive non-native species	**Construction/ decommissioning:** Habitat loss/ fragmentation/ degradation Species loss/ population fragmentation Species disturbance impacts Out-competition or disease among native species/ change in vegetation composition
			Operation: Changes in water quality/ temperature Noise, light, vibrations and visual disturbance Impingement & entrainment of fish	**Operation:** Habitat degradation Species loss/ population fragmentation Species disturbance impacts Loss/ displacement of prey species

Type of energy infrastructure development	Assumptions	Possible Activities (construction, operation and decommissioning)	Possible Impact Pathways	Likely Significant Effects
Updated EN-3: Solar PV	>50 MW in England >350 MW in Wales	Construction activities Physical presence of site Vehicle and personnel movements Maintenance activities Decommissioning and restoration activities	**Construction/ decommissioning:** Land take Changes in water quantity/ flow/ drainage Noise, light, vibrations and visual disturbance Introduction of invasive non-native species	**Construction/ decommissioning:** Habitat loss/ fragmentation/ degradation Species loss/ population fragmentation Species disturbance impacts Out-competition or disease among native species/ change in vegetation composition
			Operation: Changes in water quantity/ flow/ drainage Noise, light, vibrations and visual disturbance	**Operation:** Habitat degradation Species disturbance impacts
Updated EN-3: Offshore Wind (including floating wind)	>100MW in England and >350MW in Wales Requires Crown Estate lease within 12 nm from coast. Beyond the 12 nm limit where, under international law, the UK is able to construct wind farm installations or other structures to produce renewable energy in the Renewable Energy Zone.	Construction activities Physical presence of site Cable protection Decommissioning activities	**Construction/ decommissioning:** Land/ seabed take Benthic scouring Change in (marine) water quality Noise, light, vibrations and visual disturbance (including underwater)	**Construction/ decommissioning:** Habitat loss/ fragmentation/ degradation Species loss/ population fragmentation Species disturbance impacts (specifically marine species) Species displacement from feeding areas, migratory routes, breeding sites or other sites used for roosting, moulting or resting etc. Loss/ displacement of prey species Loss of feeding/ foraging areas
			Operation: Change in (marine) water quality	**Operation:** Habitat degradation

Type of energy infrastructure development	Assumptions	Possible Activities (construction, operation and decommissioning)	Possible Impact Pathways	Likely Significant Effects
			Presence of invasive non-native species Coastal change/ change in coastal processes Changes to electromagnetic fields/ barometric pressure Bird strike	Species loss/ population fragmentation Species disturbance impacts (specifically marine species) Species displacement from feeding areas, migratory routes, breeding sites or other sites used for roosting, moulting or resting etc. Loss/ displacement of prey species Loss of feeding/ foraging areas
Updated EN-3: Tidal stream	>100 MW in England > 350 MW in Wales	Construction activities Physical presence of site Decommissioning and restoration activities	**Construction/ decommissioning:** Land/ seabed take Benthic scouring Changes in (marine) water quality Noise, light, vibrations and visual disturbance (including underwater) Introduction of invasive non-native species	**Construction/ decommissioning:** Habitat loss/ fragmentation/ degradation Species loss/ population fragmentation Species disturbance impacts (specifically marine species) Species displacement from feeding areas, migratory routes, breeding sites or other sites used for roosting, moulting or resting etc. Loss/ displacement of prey species Loss of feeding/ foraging areas Out-competition or disease among native species/ change in habitat composition
			Operation: Coastal change/ change in coastal processes Collision of marine species with turbines	**Operation:** Habitat loss/ fragmentation/ degradation Species loss/ population fragmentation Species disturbance impacts (specifically marine species, including seabirds)

Type of energy infrastructure development	Assumptions	Possible Activities (construction, operation and decommissioning)	Possible Impact Pathways	Likely Significant Effects
			Noise, light, vibrations and visual disturbance (including underwater) Changes to electromagnetic fields Presence of invasive non-native species	Species displacement from feeding areas, migratory routes, breeding sites or other sites used for roosting, moulting or resting etc. Loss/ displacement of prey species Loss of feeding/ foraging areas Out-competition or disease among native species/ change in habitat composition
Updated EN-3: Onshore Wind (new technology added to EN-3)	>100 MW in England only	Construction activities Physical presence of site Vehicle and personnel movements Maintenance activities Decommissioning and restoration activities	**Construction/ decommissioning:** Land take Changes in water quantity/ flow/ drainage Noise, light, vibrations and visual disturbance Introduction of invasive non-native species	**Construction/ decommissioning:** Habitat loss/ fragmentation/ degradation Species loss/ population fragmentation Species disturbance impacts Out-competition or disease among native species/ change in vegetation composition
			Operation: Changes in water quantity/ flow/ drainage Noise, light, vibrations and visual disturbance Changes to electromagnetic fields/ barometric pressure Bat or bird strike Presence of invasive non-native species	**Operation:** Habitat degradation Species loss/ population fragmentation Species disturbance impacts (specifically flying species) Loss of feeding/ foraging areas Species displacement from feeding areas, migratory routes, breeding sites, etc.

Type of energy infrastructure development	Assumptions	Possible Activities (construction, operation and decommissioning)	Possible Impact Pathways	Likely Significant Effects
EN-4: Natural gas supply infrastructure and gas and oil pipelines	Underground gas storage and LNG facilities which meet one of the following two tests: storage or working capacity of at least 43 million standard cubic metres (Mcm) or maximum delivery flow rate of at least 4.5 Mcm of gas per day (Mcm/d). Gas reception facilities with a projected maximum flow rate of at least 4.5 Mcm/d Gas transporter pipelines (onshore) expected to be more than 800 mm in diameter and more than 40 km in length or construction is likely to have a significant effect on the environment.	Construction activities Physical presence of site Maintenance dredging Flaring / venting of gas	**Construction/ decommissioning:** Land take Reduction in air quality Change in water quality Changes in water quantity/ flow/ drainage Noise, light, vibrations and visual disturbance Introduction of invasive non-native species Land contamination	**Construction/ decommissioning:** Habitat loss/ fragmentation/ degradation Species loss/ population fragmentation Species disturbance impacts Loss of feeding/ foraging areas Out-competition or disease among native species/ change in habitat composition
			Operation: Reduction in air quality Change in water quality Climate change effects on habitats and species Coastal change/ change in coastal processes	**Operation:** Habitat loss/ fragmentation/ degradation Species loss/ population fragmentation Loss of feeding/ foraging areas

Type of energy infrastructure development	Assumptions	Possible Activities (construction, operation and decommissioning)	Possible Impact Pathways	Likely Significant Effects
	Pipelines over 16.093 km (10 miles) long.			
Updated EN-5: Electricity networks	Connecting existing and new power stations via transmission and distribution systems. Lines may be above-ground or underground. Includes associated infrastructure, e.g. substations and converter stations.	Construction activities Physical presence of site	**Construction/ decommissioning:** Land take Change in water quality Changes in water quantity/ flow/ drainage Noise, light, vibrations and visual disturbance Introduction of invasive non-native species	**Construction/ decommissioning:** Habitat loss/ fragmentation/ degradation Species loss/ population fragmentation Species disturbance impacts Out-competition or disease among native species/ change in habitat composition
			Operation: Bird/ bat strike	**Operation:** Species loss/ population fragmentation

3.6. Step 4: Assess the likely significance of any effects on Habitats Sites

LSEs will occur if development undermines the conservation objectives of a Habitats Site. Conservation objectives for Habitats Sites in England broadly comprise the following targets:

- Maintain or restore the extent and distribution of qualifying habitats and habitats of qualifying species
- Maintain or restore the structure and function (including typical species) of qualifying natural habitats
- Maintain or restore the structure and function of the habitats of qualifying species
- Maintain or restore the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely
- Maintain or restore the populations of qualifying species
- Maintain or restore the distribution of qualifying species within the site

For Habitats Sites in Wales, a vision and performance indicators are set out for each qualifying feature. These vary depending on the type of qualifying feature, but generally reflect those listed above, such as maintaining or restoring the extent, structure and function of qualifying habitats; ensuring sufficient area, distribution and quality of suitable habitat is present to support populations of qualifying species; and maintain or increase the population and extent of qualifying species. In addition, conservation objectives for Habitats Sites in Wales often include factors affecting qualifying features to be under control. It should be noted that Ramsar Sites do not have conservation objectives and so the conservation objectives of relevant/ similar SPAs and/or SACs (depending on the Ramsar criteria) can be used by proxy when determining LSEs on Ramsar Sites.

The conservation objectives should be read in conjunction with the Supplementary Advice on Conservation Objectives or Regulation 37 Document[24], where this is available for a Habitats Site. The supplementary advice provides extra detail on how the attribute targets can be met. However, the supplementary advice is only relevant to project-level assessments. Due to the strategic nature of this assessment for the NPSs, they are not considered further.

Given the strategic nature of the NPSs, and that they do not include any site-specific allocations for energy infrastructure, it cannot be known at this stage what type of energy infrastructure will come forward in which locations. The NPSs do not restrict the location of energy development, and they allow development of the nature and scale that could potentially affect Habitats Sites, as set out in Table 3-2. As such, it is possible that the NPSs could lead to likely significant effects on Habitats Sites.

Table 3-3 draws on the potential effects identified in the final column of Table 3-2 and sets out the types of qualifying feature that are likely to be sensitive to these effects and the typical conservation objectives of Habitats Sites that could be undermined by such effects. The wording of the typical conservation objectives for Habitats Sites in England has been used but applies equally to sites in England or Wales. ‘Factors affecting qualifying features to be under control’ has not been explicitly added to the table but could apply to any of the potential likely significant effects.

[24] Regulation 37 Documents are produced in Wales under Regulation 37 (3) of The Conservation of Habitats and Species Regulations 2017 (as amended), which requires the statutory nature conservation body to advise as to operations which may cause deterioration of natural habitats or the habitats of the species, or disturbance of species, for which the site has been designated. These set out conservation advice for Marine Protected Areas.

Table 3-3: Likely significant effects that could arise as a result of development coming forward under the NPSs

Possible impact pathways (which could cause likely significant effect)	Type of likely significant effect	Type of qualifying feature that could be significantly affected	Conservation objectives that could be undermined
Land/ seabed take	Habitat loss/ fragmentation Loss of feeding/ foraging areas	All habitat and species	• Maintain or restore extent and distribution of qualifying habitats and habitats of qualifying species.
Reduction in air quality	Habitat degradation Smothering/ enrichment of habitats	Nutrient-sensitive habitats (including soils and water) and plants	• Maintain or restore the structure and function (including typical species) of qualifying natural habitats; • Maintain or restore the structure and function of the habitats of qualifying species; • Maintain or restore the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely.
Noise, light, vibrations and visual disturbance (including underwater)	Species disturbance impacts Species displacement from feeding areas, migratory routes, breeding sites or other sites used for roosting, moulting or resting etc. Loss/ displacement of prey species	Bird species Bat species Nocturnal bird and insect species Migratory bird species Mammal species Fish species	• Maintain or restore the populations of qualifying species; • Maintain or restore the distribution of qualifying species within the site.
Change in water quality/ temperature	Habitat degradation Species disturbance impacts Species displacement from feeding areas, migratory routes, breeding sites or other sites used for roosting, moulting or resting etc.	Freshwater habitats (such as rivers and lakes) Marine habitats Wetland habitats (including groundwater dependent terrestrial ecosystems) Coastal habitats (saltmarsh, sand dunes)	• Maintain or restore the structure and function (including typical species) of qualifying natural habitats; • Maintain or restore the structure and function of the habitats of qualifying species; • Maintain or restore the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely; • Maintain or restore the distribution of qualifying species within the site;

Possible impact pathways (which could cause likely significant effect)	Type of likely significant effect	Type of qualifying feature that could be significantly affected	Conservation objectives that could be undermined
	Loss/ displacement of prey species	Aquatic species (freshwater, brackish and marine)	• Maintain or restore the populations of qualifying species.
Changes in water quantity/ flow/ drainage	Habitat degradation Species disturbance impacts Species displacement from feeding areas, migratory routes, breeding sites or other sites used for roosting, moulting or resting etc. Loss/ displacement of prey species	Freshwater habitats Marine habitats Wetland habitats Aquatic species (freshwater, brackish and marine)	• Maintain or restore the extent and distribution of qualifying habitats and habitats of qualifying species; • Maintain or restore the structure and function (including typical species) of qualifying natural habitats; • Maintain or restore the structure and function of the habitats of qualifying species; • Maintain or restore the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely; • Maintain or restore the distribution of qualifying species within the site; • Maintain or restore the populations of qualifying species.
Land contamination	Habitat degradation Species loss	Terrestrial habitats and species Wetland habitats and species	• Maintain or restore the structure and function (including typical species) of qualifying natural habitats; • Maintain or restore the structure and function of the habitats of qualifying species; • Maintain or restore the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely.
Impingement and entrainment of fish	Species loss Loss/ displacement of prey species	Fish species	• Maintain or restore the distribution of qualifying species within the site.
Benthic scouring	Habitat loss/ fragmentation/ degradation Loss of feeding/ foraging areas	Marine habitats Fish species Bird species	• Maintain or restore the extent and distribution of qualifying habitats and habitats of qualifying species;

Possible impact pathways (which could cause likely significant effect)	Type of likely significant effect	Type of qualifying feature that could be significantly affected	Conservation objectives that could be undermined
		Marine mammals	• Maintain or restore the structure and function (including typical species) of qualifying natural habitats; • Maintain or restore the structure and function of the habitats of qualifying species; • Maintain or restore the distribution of qualifying species within the site.
Coastal change/ change in coastal processes	Habitat loss/ fragmentation/ degradation Loss of feeding/ foraging areas	Coastal habitats Fish species Bird species Marine mammals	• Maintain or restore the extent and distribution of qualifying habitats and habitats of qualifying species; • Maintain or restore the structure and function (including typical species) of qualifying natural habitats; • Maintain or restore the structure and function of the habitats of qualifying species; • Maintain or restore the distribution of qualifying species within the site.
Collision of marine species with turbines	Species loss Loss/ displacement of prey species	Bird species Fish species Marine mammals Other marine species	• Maintain or restore the populations of qualifying species.
Bird/ bat strike	Species loss	Bird species Bat species	• Maintain or restore the populations of qualifying species.
Climate change effects on habitats and species	Habitat loss/ fragmentation/ degradation Species loss / population fragmentation	All habitats and species	• Maintain or restore the extent and distribution of qualifying habitats and habitats of qualifying species; • Maintain or restore the structure and function (including typical species) of qualifying natural habitats;

Possible impact pathways (which could cause likely significant effect)	Type of likely significant effect	Type of qualifying feature that could be significantly affected	Conservation objectives that could be undermined
			• Maintain or restore the structure and function of the habitats of qualifying species; • Maintain or restore the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely.
Changes to electromagnetic fields/ barometric pressure (typically associated with turbines)	Species disturbance impacts	Marine species Bat species	• Maintain or restore the populations of qualifying species; • Maintain or restore the distribution of qualifying species within the site.
Introduction of invasive non-native species	Out-competition or disease among native species / change in habitat composition	All habitats and species	• Maintain or restore the structure and function (including typical species) of qualifying natural habitats; • Maintain or restore the structure and function of the habitats of qualifying species; • Maintain or restore the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely; • Maintain or restore the distribution of qualifying species within the site; • Maintain or restore the populations of qualifying species.

3.6.1. In-combination assessment

The potential for LSE on Habitats Sites needs to be considered 'alone' and 'in-combination'. Where an LSE alone is concluded, the consideration of potential in-combination effects with other plans and projects can be taken forward to appropriate assessment. If, however, there is an effect, but it is not considered to have an LSE on a Habitats Site, i.e. the effect is minor and not significant, it is necessary to undertake an in-combination assessment at screening stage. The non-significant effect may, in-combination with effects from another plan or project, have an LSE on the Habitats Site.

Cumulative effects may increase the effects on qualifying features in an additive or synergistic way. For example, cumulative effects may:

- Increase the sensitivity or vulnerability of the qualifying features;
- Result in impacts on qualifying features more intensely over an area;
- Result in impacts to qualifying features over a larger area; and/ or
- Affect new areas of the same qualifying feature.

Where it can be demonstrated that projects will have no impact or no appreciable effect, then there is no requirement to undertake an in-combination assessment. In short, there is nothing to combine with that might then have a potential effect on a Habitats Site.

Due to the strategic and high-level nature of the updated NPSs, it is not possible to screen out Habitats Sites from Appropriate Assessment and it is not possible to rule out the potential for in-combination effects to occur. The types of plans and projects with potential for in-combination effects are listed in Table 3-4, along with types of effects that could occur in-combination. National-level plans requiring HRA, including other NPSs, may also have potential in-combination effects with the updated NPSs.

The HRA Handbook[25] advises that plans and projects at the following stages may be relevant to an in-combination assessment:

- Applications lodged but not yet determined
- Projects subject to periodic review
- Projects authorised but not yet started
- Projects started but not yet completed
- Known projects that do not require external authorisation
- Proposals in adopted plans, and
- Proposals in draft plans formally published or submitted for final consultation, examination or adoption.

Table 3-4: Example plans and projects with potential for in-combination effects with the NPSs

Example Plans and Projects	Potential In-combination Effects
National Policy Statements	• Noise, vibration and light disturbance • Air, land and water pollution • Changes to water quantity/ flow and coastal change • Species injury and mortality • Species displacement • Changes in habitat extent, composition and structure
Local Development Plans	
Local Transport Plans	
Local Minerals and Waste Plans	
River Basin Management Plans	
Water Resource Management Plans	
Shoreline Management Plans	
Marine Plans	

[25] Tyldesley, D. and Chapman, C., (2013) The Habitats Regulations Assessment Handbook, March 2021 edition UK: DTA Publications Limited.

Example Plans and Projects	Potential In-combination Effects
Nationally Significant Infrastructure Projects and associated development	
Other development: commercial, housing, minerals or waste developments	

Such in-combination effects are more likely to arise when multiple projects have similar impacts; due to effects exceeding the limit of what the relevant habitats or species can tolerate, therefore becoming significant. Any project or plan being screened for potential effects on the same Habitats Sites should be included in the in-combination assessment. This includes non-energy infrastructure development and smaller scale development that is not an NSIP. In-combination effects can be by virtue of proximity, connectivity and/ or timing. The most common combined effects include additive air quality, water quality/ quantity and habitat/ species disturbance impacts. In-combination effects are discussed at Appropriate Assessment stage.

The scope for transboundary effects has been considered within this assessment. Following the relevant guidelines[26] (see Section 2.1), the Habitats Regulations should be applied to any energy development where significant effects could occur for Habitats Sites outside of the UK. This will include assessing effects in combination and potentially require consideration of plans and projects within other jurisdictions, including other UK jurisdictions not covered by the NPSs, e.g. Scotland and Northern Ireland, and neighbouring states.

3.7. Summary of screening assessment

The screening assessment has confirmed that the NPSs are not directly connected with or necessary to the management of Habitats Sites.

It is clear that the updated NPSs recognise the importance of Habitats Sites and provide a framework for their protection. However, as the updated NPSs are high-level and do not identify specific sites for energy development, it is not possible to determine whether any resulting energy projects will have effects on Habitats Sites at this stage, or which Habitats Sites will be affected. In following the precautionary principle, the NPSs could lead to development of a nature and scale that could have likely significant effects on Habitats Sites either alone or in-combination with other plans and projects. Therefore, they have been screened in for appropriate assessment, which will allow potential mitigation to be considered.

[26] DECC (2015) Guidelines on the assessment of transboundary impacts of energy developments on Natura 2000 sites outside the UK, available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/408465/transboundary_guidelines.pdf

4. Appropriate Assessment

4.1. Approach to Appropriate Assessment

Although the updated NPSs provide policy provisions that aim to protect Habitats Sites, the screening stage was unable to conclude that there would be no likely significant effects arising from the updated NPSs either alone or in-combination with respect to emerging energy infrastructure development. Therefore, the updated NPSs were taken to Stage 2 to allow consideration of mitigation measures.

The following likely significant effects were identified from the possible impact pathways outlined in Table 3-2 above:

- Habitat loss/ fragmentation/ degradation, e.g. resulting from land take and changes to supporting processes such as air or water quality
- Species loss/ population fragmentation from direct impacts (e.g. collision with infrastructure) and habitat change
- Smothering/ enrichment of habitats from changes in air quality
- Species disturbance impacts from noise, light, vibration or visual disturbance sources, or changes in electromagnetic fields
- Species displacement from feeding areas, migratory routes, breeding sites or other sites used for roosting, moulting or resting, etc., due to onsite activity/ disturbance and changes to habitats
- Loss/ displacement of prey species from direct impacts and habitat change
- Loss of feeding/ foraging areas from land take or habitat change, and
- Out-competition or disease among native species/ change in vegetation composition resulting from introduction of invasive non-native species.

These effects could occur on any Habitats Sites within England and Wales, or further afield. Effects further afield are most likely for offshore wind, coastal development and development close to country borders.

An appropriate assessment is, therefore, required as 'a likely significant effect cannot be excluded on the basis of objective information'. That is to say, 'if the plan or project is likely to undermine the site's conservation objectives, the assessment of that risk being made in the light inter alia of the characteristics and specific environmental conditions of the site concerned by such a plan or project' (in accordance with the Waddenzee judgement, paragraph 45 and 49).

The appropriate assessment can only consider the potential effect pathways identified during Stage 1 Screening against the conservation objectives for Habitats Sites. Depending on the qualifying features, the conservation objectives for SACs and SPAs typically cover the extent, distribution, structure and function of qualifying natural habitats, supporting processes relied upon by habitats (and species) and the population and distribution of qualifying species. In conjunction with the supplementary advice[27] for a Habitats Site, the conservation objectives provide a framework for assessment and information on how qualifying features may be adversely affected. Ramsar Sites do not have conservation objectives; however, as they often overlay SAC and SPA designations, the conservation objectives for these sites can be applied to the Ramsar Site.

4.2. Assessment of adverse effects on integrity of Habitats Sites

The purpose of the appropriate assessment stage is to identify whether the plan would have adverse impacts on the integrity of the affected Habitats Site(s). The integrity of a site is defined as "*the coherence of the site's ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/ or the populations of the species for which the site is, or will be designated*"[28]. Guidance emphasises that site integrity involves its ecological functions and that the assessment of adverse effect should focus on and be limited to the site's conservation objectives[29].

[27] Such as the relevant Supplementary Advice on Conservation Objectives or Regulation 37 document.
[28] Natural England (2019) MPA Conservation Advice Glossary of Terms. Available here: https://designatedsites.naturalengland.org.uk/pdfs/MPA_CAGlossary_March2019.pdf
[29] European Commission (2018) Managing Natura 2000 Sites. The Provision of Article 6 of the 'Habitats' Directive 92/43/EEC.

A number of protective provisions have been written in to the updated NPSs (as assessed in Table 3-1 above) and several of these are considered to help avoid adverse effects on Habitats Sites. In brief, this avoidance is through a commitment to undertaking HRA, early engagement and collaboration with the relevant SNCB, the taking of a strategic / integrated approach, compliance with associated HRAs and placing a duty on the applicant to consider the first two legal test under the derogations, i.e. the existence of alternatives and the IROPI case, before compensatory measures (the third test) are explored. The policy provisions thereby ensure that the HRA process is integral to energy infrastructure planning and development and is robustly followed.

The exception to this is the amendment made in updated EN-3 for an assessment of 'inter-array wake effects' between applicants and those of consented and operational wind farms in the pre-application stage to inform and support the consideration of potential mitigations. By this approach applicants would need to make reasonable efforts to explain how the project configuration has evolved and demonstrate that they have worked to manage the impact of wake effects on other occupiers, setting out non-exhaustive examples of what such management measures could include. To co-inside with this and strategically address environmental barriers, the department are working closely with Defra to support them in delivering the OWEIP.

The effects set out in Table 3-3 could result in adverse effects on the integrity of Habitats Sites, although this depends on the nature and location of any development coming forward under the NPSs. Due to the strategic nature of the documents and the fact they do not identify specific locations for development, it is not possible to undertake a detailed assessment of potential for adverse effects on integrity of Habitats Sites. Furthermore, the NPSs cover a large range of potential energy infrastructure developments, which would show some variation in the specific impacts they may have on different qualifying features. In determining the effects that the Energy NPSs might have on the integrity of one or more Habitats Site(s), with respect to a specific Habitats Site's conservation objectives it is necessary to consider potential mitigation. Potential mitigation measures for the effects identified are outlined below.

4.2.1. Mitigation measures

In accordance with the People over Wind case, mitigation measures were not taken into account at the screening stage but are to be considered in this appropriate assessment. The updated NPSs set out mitigation measures, including mitigation for generic impacts in updated EN-1 and technology specific mitigation in updated EN-3 and EN-5. However, the generic provisions in the NPSs suite do not provide sufficient certainty that no adverse effects will occur, as details of specific projects are yet to be determined and, therefore, it is not possible to determine what effects will occur and whether it is possible to mitigate such effects. In addition, the NPSs recognise that it may not be possible to avoid or mitigate all effects. However, the risk itself is mitigated through the requirement within the NPSs for project-level HRA.

It is feasible that avoidance and mitigation measures could be applied at the project HRA level, and this may be sufficient to avoid or mitigate any adverse effect on Habitats Site integrity. However, mitigation of this kind is project-specific and without a project it can only be considered in generic terms at this strategic level.

In all cases it will be important to plan and design projects to avoid impacts wherever possible. General avoidance and mitigation measures include:

- Choosing spatial locations, routes or scales that have less of an impact, but still retain functionality
- Use of alternative construction or operation methods that minimise potential impacts
- Sensitive layout or design
- Scheduling (construction, operation and decommissioning) so that potentially damaging activities avoid important stages of the life cycle of key species (e.g. migration, breeding and overwintering periods)
- Developing adaptive management plans and procedures

Generic mitigation measures that could be implemented to avoid or reduce adverse effects on the integrity of Habitats Sites as a result of development that could be permitted through the NPSs are listed in Table 4-1 below. Note that it may be possible to avoid effects on Habitats Sites through siting development in a different location and this should be explored for each project in turn, although it is noted that locations are usually somewhat constrained by the nature of the project. For example, water-cooled gas power stations need to be near a suitable water source and wind farms need to be located where wind conditions are suitable, and all projects need sufficient land for construction and operation. The mitigation measures listed below are generally standard measures, known to be effective. Those that are less standard or more novel approaches to mitigation, which are likely to have a higher level of uncertainty with regards to their effectiveness, are described as such. Note that the suggested mitigation measures set out below are not exhaustive, and the most appropriate measures will be project specific and informed by the nature of the project and exact effects likely to arise.

Table 4-1: Potential Mitigation Measures for Adverse Effects

Possible impact pathway/ potential adverse effect	Mitigation Measure
All	• Sensitive in site selection, layout, design and programming as far as reasonably practicable to minimise impacts.
Land/ seabed take	• Excluding impacts within Habitats Sites; place and configure site so valuable habitats can be retained, if possible; • Habitat outside a Habitats Site that provides wider feeding resource or habitat connectivity and is important in maintaining the conservation status of a qualifying feature is functionally linked to the designation. Impacts to functionally linked land and habitat connectivity features will need to be mitigated to prevent fragmentation and direct impacts on qualifying species. This may include avoidance and sensitive routing of infrastructure and access, timing the works to avoid disturbance, screening or creating alternative wildlife corridors as close as possible to those affected as a result of development.
Reduction in air quality	• Ensure efficient movement of vehicles to, from and around the site, such as using delivery vehicles to remove waste from the site; • Prioritise the use of more sustainable modes of transport for both haulage and travel to work; • Implement construction and operational protocols to minimise dust; • Consider use of catalytic reduction (minimises emissions of nitrous oxides).
Noise, light, vibrations and visual disturbance (including underwater)	• Consideration of site uses during design, with activities with potential to cause noise/ vibration impacts away from sensitive receptors; • Use of noise barriers, or bunds; • Undertake activities resulting in higher levels of noise and / or vibration (particularly construction) outside of the breeding season, or, if the site is designated for overwintering birds, outside the overwintering season; • Keep vehicles, plant and bunded storage facilities maintained and frequently inspected to minimise the risk of any fuel/ oil or chemical spills; • Restrict use of artificial lighting in proximity to sensitive receptors; • Limit operating times to reduce need for artificial lighting; • Sensitive lighting design, including low heights and cut-offs for external lights.

Possible impact pathway/ potential adverse effect	Mitigation Measure
Change in water quality/ temperature (fresh and marine)	• Ensure wastewater is suitably treated before release back into the environment. This could include allowing it to cool before release (note that this is not a standard measure as it would require the design of development to include a holding area and cooling system for wastewater prior to release. Its effectiveness depends on the temperature of water when it is released, as this may still differ from the ambient water temperature to some extent); • Minimise water use through water efficiency, and use/ re-use water where possible; • Design of the cooling system should include intake and outfall locations that avoid or minimise adverse impacts, including consideration of alternative water supply arrangements (note that this is a less standard measure and must be an integral part of design. It may not be achievable for all developments, as it depends on the size and nature of the waterbody involved and distribution of sensitive species within this); • Design the cooling water outfall to increase the momentum of the discharge, to help propel the thermal plume, and promote sufficient mixing and dispersal and decay of associated biocide products (if these are required) and reduce the risk of recirculation; • Use of alternatives to water cooling in power plants (gas, biomass and energy from waste), such as dry/ air cooling or closed-cycle cooling; • For offshore construction and maintenance, marine vessels should only carry small quantities of fuel and other potential pollutants and should be well maintained.
Changes in water quantity/ flow/ drainage	• Minimise water use through water efficiency, and re-use water where possible; • Implement suitable drainage, such as sustainable drainage systems (SuDS), on site to manage flooding.
Land contamination	• Implementing pollution control procedures, such as designated areas for storage and unloading, with measures to contain any spills to these areas; • Emergency response procedures should be in place in the event that an incident does occur, and relevant equipment should be kept on-site.
Impingement and entrainment of fish	• Design development so that it does not obstruct any watercourses (note that this will not be possible for some technologies); • Install fish guards on any water abstraction equipment (this will help to prevent fish entrainment but fish could still become impinged on the guard); • Locate water abstraction equipment away from most fish-populated areas of aquatic sites, if possible, or away from sensitive areas, such as fish nurseries (note that this is a less standard measure and must be an integral part of design. It may not be

Possible impact pathway/ potential adverse effect	Mitigation Measure
	achievable for all developments, as it depends on the size and nature of the waterbody involved and distribution of relevant species within this).
Benthic scouring	• Sensitive siting of cable routes to avoid the most important benthic habitats.
Coastal change/ change in coastal processes	• Minimise physical changes to the coast, where possible; • See mitigation above for land take.
Collision of marine species with turbines	• Site turbines located away from known migration routes/ key feeding grounds where possible; • Integrate sensors that shut down a turbine or give a warning signal when a collision risk is identified (this is a less standard measure and emerging technology; therefore, the level of effectiveness may need monitoring).
Bird/ bat strike	• Site wind turbines and electricity lines away from known migration routes key feeding grounds and flight lines between breeding colonies and foraging grounds; • Integrate sensors that shut down a turbine or give a warning signal when a collision risk is identified (this is a less standard mitigation measure and emerging technology; therefore, the level of effectiveness may need monitoring); • Reduce risk of turbine collision through design modifications. This could include raising of wind turbine rotor height, which is an effective mitigation measure for seabirds, or less standard mitigation measures with greater uncertainty as to their effectiveness.
Climate change effects on habitats and species	• Contribute to creating connected ecological networks to allow species to move through the landscape in response to changing conditions (note that this is a less standard measure as it depends on the existing habitats and land use in the wider area and may require purchasing additional land. This measure is likely to be more effective on a greater scale, where it can link into regional habitat networks); • Ensure efficient movement of vehicles to, from and around the site, such as using delivery vehicles to remove waste from the site; • Prioritise the use of more sustainable modes of transport for both haulage and travel to work; • Implement carbon capture and storage.
Changes to electromagnetic fields	• Ensure cabling is situated at sufficient depth and well-insulated (including use of armoured cables).

Possible impact pathway/ potential adverse effect	Mitigation Measure
Introduction of invasive non-native species	• Implement a biosecurity plan; • Use locally/ nationally sourced materials, where possible.
Displacement of bird species	• Site wind turbines and electricity lines away from migration routes, flight lines, feeding areas and key roosts; • Sensitively timing potentially disturbing work to avoid or minimise bird displacement impacts.
Disturbance to marine species	• Site turbines located away from known migration routes/ key feeding grounds where possible; • Sensitively timing potentially disturbing work to avoid or minimise impacts.

4.3. In-combination effects

Given the nature of any energy infrastructure and the absence of any direct development potential (as would be the case by having nominated sites), there is inevitably going to be a delay between the adoption of the updated NPSs and any subsequent energy infrastructure development. It is not possible to know when project proposals will come forward and it is not therefore possible to predict what other plans and projects will be relevant to future project assessments.

Given the uncertainties regarding the location of any particular energy infrastructure that may come forward under the NPSs, it is not possible to rule out in-combination effects. Relevant national-level plans and the types of plans and projects that will be relevant to future project-level HRA have been identified in Table 3-4. All new energy infrastructure development likely to require a project-level HRA, will have in-combination effects assessed on a case-by-case basis, as required. Given the framework of protection afforded Habitats Sites within the updated NPSs, the scope for mitigating adverse effects and the integrated and strategic approach championed by the NPSs, it is considered likely that the updated NPSs causing a contribution to adverse effects on site integrity in-combination can be avoided.

4.4. Summary of Appropriate Assessment

It is not possible to conclude that there will be no effects on Habitats Sites, alone or in-combination, as a result of development coming forward under the updated NPSs. However, the protective policy provisions of the NPSs and the potential mitigation measures for impacts arising from energy infrastructure development and operation means that through robust and strategic assessment, it is likely that residual adverse effects on site integrity can be avoided in most cases and minimised where unavoidable. All arising development projects will be subject to HRA, and specific effects dealt with at the project stage when detailed information is available.

As the scope for potential adverse effects on Habitats Sites for energy infrastructure has potential to be far-reaching, e.g. effects are seen on Habitats Sites in other nations, particularly as a result of offshore wind and coastal development, a precautionary approach has been taken to all stages.

While adverse effects on site integrity are not predicted as a result of the updated NPSs, as a precaution, information to support progress through the derogations has been provided within this HRA on a ‘without prejudice’ basis. Therefore, Chapter 5 explores potential for alternative solutions and Chapter 6 discusses the IROPI case and the need for the Energy NPSs. These elements apply specifically to the updated NPSs, and not to any individual projects that may arise. Chapter 7 includes strategic and project-level compensation, which gives guidance on measures that could be applied either strategically as more holistic approaches (for example, to groups of projects that are related in type, location and / or potentially affected Habitats Sites) or specifically for individual projects.

5. Assessment of Alternative Solutions

5.1. Approach to Assessment of Alternative Solutions

Regulation 107(1) of the Habitats Regulations states that "*If the plan-making authority are satisfied that, there being no alternative solutions, the land use plan must be given effect for imperative reasons of overriding public interest…they may give effect to the land use plan notwithstanding a negative assessment of the implications for the Habitats Site or the European offshore marine site…*".

Guidance on protecting a Habitats Site[30] indicates that in applying for a derogation, the first test is showing that there are no feasible alternatives that would be less damaging or avoid damage to the Habitats Site. Therefore, the absence of feasible alternative solutions must be demonstrated before the assessment can move on to the next legal test.

The requirement is for 'alternative solutions', not merely 'alternatives' to be considered. For example, the 'do nothing' approach is not a realistic alternative solution because it would not achieve the objective of the updated NPSs.

According to The Habitat Regulations Assessment Handbook[31], there are four principal steps in establishing the presence or absence of alternative solutions:

- Step 1 – define the objectives or purpose of the plan and the problem it is causing that needs to be solved, i.e. the harm that it would cause to the integrity of a Habitats Site.
- Step 2 – understand the need for the plan.
- Step 3 – are there financially, legally and technically feasible alternative solutions.
- Step 4 – are there alternative solutions with a lesser effect on the integrity of the Habitats Site?

In some cases, wide ranging alternatives may deliver the same overall objective, but generally the range of alternative options are curtailed by the boundary created by the policy objectives, e.g. alternative solutions for a new motorway would not normally include the assessment of other modes of transport. These four steps are considered in turn below.

5.2. Step 1: Define the objectives or purpose of the plan and the problem it is causing

The key objectives of the updated Energy NPSs are to ensure the energy supply always remains secure, reliable, affordable, and consistent, meeting Government targets in relation to Clean Power 2030 and net zero by 2050.

Table 3-2 and Table 3-3 set out the potential impacts and likely significant effects of the updated NPSs. However, at this strategic stage it is not possible to define a specific 'effect'; as such risks to the integrity of the Habitats Sites have been identified at a high level and are largely precautionary. Detailed alternatives to particular developments can only be considered during the project stage of any arising energy infrastructure development, once specific effects, pathways and receptors have been identified.

5.3. Step 2: Understand the need for the plan

As set out in Section 5.2, the updated NPSs are needed to ensure the Government is on target in relation to Clean Power 2030 and net zero by 2050 and providing a secure, reliable, affordable and low-carbon energy supply. Updating EN-1, EN-3 and EN-5 is considered essential to put Clean Power 2030 front and centre as the primary policy.

[30] Habitats regulations assessments: protecting a European site - https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site

[31] Tyldesley, D. and Chapman, C., (2013) The Habitats Regulations Assessment Handbook, March 2025 edition UK: DTA Publications Limited.

5.4. Step 3: Financially, legally and technically feasible alternative solutions

The AoS sets out three alternatives (A1 to A3) to the mix of energy technologies included in the updated EN-1, as shown in Table 5-1. The NPSs set a strategic framework within which it is for industry to propose new energy infrastructure projects. The reasonable alternatives that have been formulated to inform the development of updated EN-1 are based on the fundamental premise that a combination of technologies, not one single technology, will be required to deliver secure and affordable supplies of energy which are compatible with net zero and protection of the environment. It is important to note that all of the alternatives are variations of updated EN-1 but are differentiated by the removal or restriction of specific technologies. The HRA implications of these alternatives are considered in Section 5.5.

Table 5-1: Plan and Alternatives considered for EN-1

Plan	**Overview of technologies**
EN-1	Updated EN-1 combines: Renewables (including Solar, Onshore and Offshore Wind, Biomass and Energy from Waste with CCS), Natural Gas-fired electricity generation with or without CCS, Hydrogen-fired electricity generation, Pumped Hydro Storage, Nuclear, associated electricity network infrastructure, and natural gas, oil, hydrogen and CCS infrastructure.
Alternatives	**Overview of technologies**
Alternative 1 (A1)	As for updated EN-1 without Nuclear and Unabated Natural Gas
Alternative 2 (A2)	As for updated EN-1 without Unabated Natural Gas
Alternative 3 (A3)	As for updated EN-1 without Nuclear

5.5. Step 4: Alternative solutions with a lesser effect on the integrity of the Habitats Site

Given that each of the alternatives includes a selection of the technologies included in the updated EN-1, the relevant effects set out in Table 3-2 would apply. As the reasonable alternatives are all variations of updated EN-1 and given the strategic and none site-specific nature of the NPSs, effects are likely to be largely similar between options.

5.5.1. A1: As for updated EN-1 without Nuclear and Unabated Natural Gas

By focusing on a combination of Renewables, Abated Natural Gas, Hydrogen and Energy Storage technologies, Alternative A1 is likely to result in substantially lower carbon emissions than updated EN-1, which will benefit biodiversity and Habitats Sites in the long-term, due to reduced contribution to climate change effects on habitats and species.

Renewable technologies tend to involve more extensive land use than thermal power plants of equivalent capacity, and abated natural gas requires greater land take for carbon capture facilities. Therefore, this option could result in greater effects associated with the physical presence of energy infrastructure, including increased habitat loss and fragmentation and/or noise, light and visual disturbance occurring over a greater area.

The remaining effects depend on the resultant energy use. For instance, greater reliance on renewable technologies could result in lower levels of water abstraction and discharge, as well as reduced emissions of air pollutants. However, this option could result in development of abated natural gas, hydrogen, biomass and energy from waste power plants, which have similar impacts to unabated natural gas power plants in terms of water quality and air pollution (excluding greenhouse gas emissions).

5.5.2. A2: As for updated EN-1 without Unabated Natural Gas

By focusing on a combination of Renewables, Abated Natural Gas, Nuclear, Hydrogen and Energy Storage technologies, Alternative A2 is likely to result in substantially lower carbon emissions than updated EN-1, which

will benefit biodiversity and Habitats Sites in the long term, due to reduced contribution to climate change effects on habitats and species.

The inclusion of Nuclear energy technology for this alternative may result in a more efficient use of land, as nuclear tends to generate more energy per square metre than renewables. However, abated natural gas requires greater land take for carbon capture facilities. As such this option is likely to generally result in less habitat loss and fragmentation and result in other impacts related to the physical presence of the site over a smaller area compared to A1 but may result in greater land take and associated impacts than updated EN-1.

5.5.3. A3: As for updated EN-1 without Nuclear

This alternative may result in more increased carbon emissions than updated EN-1 (as well as A1 and A2), as removing nuclear may result in greater reliance on energy from natural gas, particularly for reliability of energy supply. This would result in increased climate change effects on habitats and species, potentially resulting in adverse effects on Habitats Sites.

Given the high efficiency of nuclear power in terms of energy per square metre, excluding it could result in greater land take, resulting in an increase in associated effects, including habitat loss and fragmentation and species disturbance over a larger area, compared to updated EN-1. However, land take for A3 is likely to be less than for A1.

5.5.4. Conclusions regarding alternative solutions to the NPSs

Each type of technology has potential to result in likely significant effects and adverse effects on integrity of Habitats Sites. As with the updated EN-1, none of the alternatives set out specific locations (within the bounds of siting constraints) for development, therefore, the uncertainty identified in relation to updated EN-1 will also apply. As such, potential for any of the reasonable alternatives to result in adverse effects on integrity of one or more Habitats Sites cannot be ruled out in relation to any of the alternatives identified. Each alternative considered is likely to perform better than updated EN-1 in some ways (a reduction in carbon emissions, potential for reduced habitat loss and fragmentation, or less impact on marine Habitats Sites), but would perform worse in other ways (increased carbon emissions, increased potential for habitat loss and fragmentation and greater impact on terrestrial and freshwater Habitats Sites).

5.5.5. Alternative solutions at the project level

When considering alternatives at project stage, there are likely to be a wide range of potential alternative solutions available when assessing a specific development proposal, including variations in layout, scale and timing of a development. Although alternative locations could be proposed as an alternative solution, there are two reasons why this may not be a suitable or straightforward alternative to consider. Firstly, there is likely to be a detailed and rigorous siting procedure that has been followed to identify suitable sites. Secondly, there is potential that multiple suitable sites would be brought forward, as there is no cap on the amount of new energy generation and low carbon infrastructure. Any feasible alternative solutions will need to be subject to HRA to confirm a less damaging effect on Habitats Sites.

It is possible to collate evidence with regard to the absence of alternative solutions during early stages of the site and option selection process. This evidence-based approach provides some certainty that the project in its chosen form is already the least environmentally damaging option, as other feasible alternatives have already been explored, ruled out and this will have been documented. Any adverse effects persisting in the face of avoidance and mitigation measures, in the light of assessment work, may then only be in relation to more minor details and would not require the project to return to the drawing board.

Therefore, given the degree of environmental consideration and assessment required, not only by legislation but as also the NPS, and the evidence-based approach that can be taken, it is considered that, where alternative solutions need to be considered in order to meet the legal test under the derogations, it can be successfully approached in a systematic and rigorous way.

6. Imperative Reasons of Overriding Public Interest (IROPI)

6.1. Approach to considering IROPI

If it can be demonstrated that there are no feasible alternative solutions, and where adverse impacts remain upon a Habitats Site, IROPI must be considered. The assessment of alternatives in Chapter 5 demonstrated that there are no alternative ways of meeting the objectives of the updated NPSs that would be less environmentally damaging.

This stage considers whether the plan or project is[32]:

- **Imperative**: it must be essential (whether urgent or otherwise), weighed in the context of the other elements below, that the plan or project proceeds;
- **Overriding**: the interest served by the plan or project outweighs the harm (or risk of harm) to the integrity of the site as identified in the appropriate assessment. In this context, the European Commission guidance states that it is reasonable to assume that the interest can only be overriding if it is a "long-term interest";
- **In the public interest**: a public benefit must be delivered rather than a solely private interest.

The Government's case for IROPI is set out below. Note that this IROPI case is a plan level assessment which applies to the updated NPSs only. The extent to which any project meets the IROPI case will be determined on a case-by-case basis and is dependent on scale, nature and location of the project and the interest features of the Habitats Sites affected.

6.2. Case for IROPI

The case for IROPI is predicated on the principal and essential need for the updated NPSs in providing a framework for delivering the UK's international commitments on climate change in accordance with the objectives of the Paris Agreement and Clean Power 2030. The consequences of not achieving those objectives would be severely deleterious to societies across the globe, including the UK, to human health, to social and economic interests and to the environment.

6.2.1. The UK has a legal commitment to decarbonise

The Government, through the Climate Change Act ('CCA') 2008, set legally binding targets for the UK, aiming to cut emissions (versus 1990 baselines) by 34% by 2020 and at least 80% by 2050[33].

In October 2018, following the adoption by the UN Framework Convention on Climate Change ('CCC') of the Paris Agreement, the Intergovernmental Panel on Climate Change ('IPCC') published a 'Special Report on the impacts of global warming of 1.5°C above pre-industrial levels'. This report concludes that human-induced warming had already reached approximately 1°C above preindustrial levels, and that without a significant and rapid decline in emissions across all sectors, global warming would not be likely to be contained, and therefore more urgent international action is required. In response, in May 2019, the CCC published their report called 'Net-Zero: The UK's contribution to stopping global warming'[34]. This report recommended that the Government extend the ambition of CCA2008 past the delivery of net UK greenhouse gas savings of 80% from 1990 levels,

[32] DEFRA (2012) Habitats Directive: guidance on the application of article 6(4) Alternative solutions, imperative reasons of overriding public interest (IROPI) and compensatory measures.
[33] The commitment to decarbonise extends across the United Kingdom of Great Britain and Northern Ireland. Northern Ireland is interconnected with the mainland power system through interconnectors, but is operated under a different electricity market framework. Therefore, hereinafter we refer to Great Britain ('GB') in relation to electricity generation and transmission, and the UK, to refer to the nation which has legally committed itself to Net-Zero carbon emissions by 2050.
[34] Committee on Climate Change. *Net Zero - The UK's contribution to stopping global warming*. 2019.

by 2050. Importantly, the CCC recommendation identified a need for low-carbon infrastructure development which is consistent with the need case set out in NPS EN-1, but points to an increased urgency for action.

In June 2019, the UK became the first major economy to legislate for a 2050 net zero Greenhouse Gases (GHG) emissions target (100% reduction) through the Climate Change Act 2008 (2050 Target Amendment) Order 2019[35].

In December 2020, the UK communicated its Nationally Determined Contributions to reduce GHG emissions by at least 68 per cent from 1990 levels by 2030[36]. In April 2021, the government legislated for the sixth carbon budget (CB6), which requires the UK to reduce GHG emissions by 78 per cent by 2035 compared to 1990 levels[37].

In October 2021, the government published the Net Zero Strategy. This set out our vision for transitioning to a net zero economy and the policies and proposals for decarbonising all sectors of the UK economy to meet our net zero target by 2050, making the most of new growth and employment opportunities across the UK.

In December 2024, the government published the Clean Power 2030 Action Plan. The plan sets out infrastructure deployment pathways and generation capacity ranges that will ensure by 2030 clean sources produce at least 95% of Great Britain's generation, meeting the CB6 advice and pushing the country towards net zero 2050. The government will continue to update its decarbonisation plan.

6.2.2. Why we need a mix of energy infrastructure and why we need each of the technologies covered by the updated Energy NPSs in that mix

We need a diversity of energy sources so that we are not overly reliant on any one source of technology (avoiding potential technology lock-in), fuel or supplier.

Wind and solar are the lowest cost ways of generating electricity, helping to reduce costs and providing a clean and secure source of electricity supply (as they are not reliant on fuel for generation). A secure, reliable, affordable, net zero consistent system in 2050 is likely to be composed predominantly of wind and solar. The clean power capacity ranges for variable technologies established in Clean Power 2030 are 43 – 50 GW for offshore wind, 27 – 29 GW for onshore wind, and 45 – 47 GW for solar.

Storage has a key role to play in meeting the Clean Power 2030 Mission, achieving net zero and providing flexibility to the energy system, reducing the amount of generation and associated network that needs to be built to meet peak demand, helping achieve clean power in a cost-effective way and reducing delivery risk associated with other types of energy infrastructure. Storage is needed to reduce the costs of the electricity system and increase reliability by storing surplus electricity in times of low demand to provide electricity when demand is higher. These include maximising the usable output from intermittent low carbon generation (e.g. solar and wind), reducing the total amount of generation capacity needed on the system, and reducing constraints on the system; providing a range of balancing services to the National Energy System Operator (NESO) and Distribution Network Operators (DNOs) to help operate the system; and reducing constraints on the networks, helping to defer or avoid the need for costly network upgrades as demand increases[38].

Interconnectors across national borders has an essential role in delivering secure, low carbon electricity system at low cost. The UK recognises the importance and benefits of increasing levels of interconnection and the DESNZ 'Clean Power Capacity Range' sets out a possible installed capacity range of 12-14GW of operational interconnector capacity by 2030. Interconnection provides access to a diverse pool of generation, enabling the import of cheaper electricity, while also providing a route for electricity export. Interconnectors provide the system with additional flexibility, which can reduce the curtailment of renewable energy, and can also provide a range of ancillary services, such as voltage and black start services[39].

[35] See legislation.gov.uk/ukdsi/2019/9780111187654
[36] See https://www.gov.uk/government/publications/the-uks-nationally-determined-contribution-communication-to-the-unfccc
[37] See https://www.gov.uk/government/news/uk-enshrines-new-target-in-law-to-slash-emissions-by-78-by-2035
[38] NPS EN-1 Paras 3.3.26, 3.3.27 & 3.3.28
[39] NPS EN-1 Paras 3.3.33 & 3.3.35

Combustion power stations use fuel for generation. This means that it is possible for them to provide dispatchable generation when the output from intermittent renewables is low, but they are dependent on the supply of fuel for generation. Most forms of combustion power also produce residual emissions of GHGs gases, and where this is the case, their use will need to be limited over time unless they can decarbonise. Whilst we will continue to rely on unabated gas to ensure security of supply, we will be driving the deployment of low carbon technologies. All commercial scale (at over 300MW) combustion power stations fuelled by gas, coal, oil or biomass have to be constructed Carbon Capture Ready (CCR)[40].

Nuclear fission already provides the UK with continuous, reliable, safe low-carbon power. Nuclear plants produce no direct emissions during operation and have indirect life-cycle greenhouse gas (GHG) emissions comparable to offshore wind. Nuclear, alongside other technologies could also offer broader system benefits, such as low carbon hydrogen production through electrolysis, or low carbon heat. In addition, nuclear generation provides security of supply benefits by utilising an alternative fuel source to other thermal plants, with a supply chain independent from gas supplies[41].

Hydropower can provide relatively predictable and, in some cases, flexible low carbon generation but total capacity is limited by the topography of the UK. **Wave and tidal** can also provide relatively predictable low carbon power and could play a role in future if their costs can be reduced. However, total capacity is limited for tidal power and wave power is very closely correlated with wind. These technologies, as with most other renewables, help provide security of supply as they are not reliant on fuel for generation and can improve reliability where they are not correlated with wind and solar[42].

New coal or large-scale oil-fired electricity generation are not consistent with the transition to net zero due to their high specific emissions and so are not included within the need case of EN-1. Active steps are being taken to phase them out of the energy system. The use of unabated natural gas for heat and electricity, and crude oil to provide fuels for transport, will still be needed during the transition to a net zero economy. Associated **oil and gas infrastructure**, including pipelines, will be needed. This will enable secure, reliable, and affordable supplies of energy as we develop and deploy the low carbon alternatives to replace them[43].

New **electricity networks** will be needed to connect these sources of electricity with each other, and with centres of consumer demand. Development of new transmission lines of 132kV (and over 2 km) and above will be necessary to preserve and guarantee the robust and reliable operation of the whole electricity system[44].

As set out in the UK Hydrogen Strategy[45], the government is committed to developing **low carbon hydrogen**, which will be critical for meeting the UK's legally binding commitment to achieve net zero by 2050, with the potential to help decarbonise vital UK industry sectors and provide flexible deployment across heat, power and transport. Hydrogen can be produced through water electrolysis with low carbon power ('green' hydrogen) or through methane reformation with CCS ('blue' hydrogen). The government's view is that a twin track approach of developing both green and blue hydrogen production will be needed to achieve the scale of low carbon hydrogen production required for net zero. The Hydrogen Strategy recognises the critical enabling role that hydrogen transportation and storage infrastructure will need to play in connecting hydrogen producers with consumers and balance misalignment in supply and demand. To support the urgent need for low carbon hydrogen infrastructure, hydrogen distribution, pipelines and storage, are considered to be CNP Infrastructure[46].

CCS infrastructure will be needed to ensure the transition to a net zero economy, this could be new or repurposed infrastructure. CCS is needed to enable domestic production of low carbon hydrogen from natural gas, industrial processes, the use of Bioenergy with Carbon Capture and Storage (BECCS) and Direct Air Carbon Capture and Storage (DACCS). CCS is also fundamental to the deep decarbonisation of energy intensive industries, either on its own or in combination with measures such as electrification and fuel switching. Where sectors are not completely decarbonised, we will need negative emissions to offset residual emissions

[40] NPS EN-1 Para 3.3.37
[41] NPS EN-1 Para 3.3.53
[42] NPS EN-1 Paras 3.3.56 & 3.3.57
[43] NPS EN-1 Section 3.4 & 3.6
[44] NPS EN-1 Para 3.3.70
[45] See https://www.gov.uk/government/publications/uk-hydrogen-strategy
[46] NPS EN-1 Para 3.4.12 - 3.4.23

in these sectors. Other sources of negative emissions are limited in some way and negative emissions using CCS infrastructure are viewed as essential for delivering our net zero target.

All the technologies mentioned above, excluding new coal and large-scale oil, are urgently needed to meet the Government's energy objectives.

6.2.3. Why the updated Energy NPSs are needed

The Energy NPSs enable the delivery of one of the key principles of the planning system for NSIPs pursuant to the Planning Act 2008; namely that the SoS should consider urgently needed infrastructure in a timely fashion and decisions should be taken without delay. The national need for the infrastructure has been established by the Government (as set out in EN-1). When the SoS considers an individual application, it should, therefore, act on the basis that the need for such a development has been demonstrated and should be given substantial weight.

The updated NPSs set out the policy that the SoS should act in accordance with when considering applications for energy infrastructure. Without having to consider the detail of the need for each case, the SoS will be able to focus on the local impacts of the development, taking into account the views of local people and local authorities and relevant environmental and regulatory assessments.

Setting out planning policy (including a strong expression of the need for new energy infrastructure) in the updated EN-1 will result in a more streamlined planning system with enhanced certainty for developers. Continuing delays in the planning process would add to uncertainty for energy companies and could result in them choosing to invest in other generation technologies or in other countries. This would make it more difficult for the UK Government to meet its energy policy objectives of providing security of supply, providing an affordable, reliable system, and ensuring the system is net zero consistent.

The Government has considered alternative approaches to the development of the Energy NPSs and concluded that the potential for likely significant effects on Habitats Sites would be best managed within the Energy NPSs. Nationally Significant Energy Infrastructure Projects will only be consented subject to compliance with the Conservation of Habitats and Species Regulations and the Conservation of Offshore Marine Habitats and Species Regulations.

In light of the Government's objective of having NPSs setting out: Government energy policy; the need for new energy infrastructure and assessment principles and generic impacts and having considered that the alternative of not having the Energy NPSs would be likely to cause delay and uncertainty in the planning system, there is an IROPI for the Energy NPSs. The alternatives of not having the Energy NPSs, or having them constructed in a different way, would delay development consent decisions which is not compatible with the Government objectives, which require rapid decarbonisation of the generation mix, security of supply and affordable energy.

6.2.4. Why new energy infrastructure is needed

The key objectives of the Energy NPS suite are for the energy system to ensure supply of energy always remains secure, reliable, affordable, and consistent with meeting our target to cut GHG emissions to net zero by 2050.

Achieving these objectives requires a significant amount of energy infrastructure including the infrastructure needed to increase supply of clean energy from renewables, nuclear, and hydrogen manufactured using low carbon processes and, where we still emit carbon, developing the industry and infrastructure to capture, transport and store it. As set out in updated EN-1, new energy infrastructure will have to be built to replace output from retiring plants and to ensure we can meet increased demand. The CCC describes one scenario: 'extensive electrification, particularly of transport and heating, supported by a major expansion of renewable and other low-carbon power generation'. The report goes on to describe that 'the scenarios involve around a doubling of electricity demand, with all power produced from low-carbon sources (compared to 50% today)'[47].

The future characteristics of the UK's electricity demands are described through a set of possible scenarios developed (through industry consultation) on an annual basis by the National Energy System Operator (NESO) and statutory undertaker, National Grid. This annual publication is called Future Energy Scenarios ('FES')[48].

[47] Committee on Climate Change. *Net Zero - The UK's contribution to stopping global warming*. 2019.
[48] See https://www.neso.energy/publications/future-energy-scenarios-fes

The 2024 publication ‘FES: ESO Pathways to Net Zero’ considers three net zero pathways: ‘Holistic Transition’, ‘Electric Engagement’ and ‘Hydrogen Evolution’. This represents a more strategic and focussed framework approach to achieving net zero compared to the previous scenarios approach to meeting the 2050 carbon reduction target. Themes within actions in FES 2024 include ‘accelerating delivery’, ‘energy efficiency improvements’ and ‘investment’.

Both the CCC report and NESO’s forecasts of the development of low-carbon generation in the UK, leads to the conclusion that, in order for the UK to achieve net zero, all possible use needs to be made from the resources and infrastructure available for low-carbon developments.

However, this transition cannot be instantaneous. Oil and gas also have key roles in the UK energy landscape, with oil providing fuels for transport and use of gas for heat and electricity generation. Some limited residual use of unabated fossil fuels may even be needed beyond 2050 to meet the UK’s energy objectives. However, some residual use can be consistent with the net zero target if the emissions from their use are balanced by negative emissions from GHG removal technologies.

The AoS for updated EN-1 published for consultation considers in detail the possible alternatives to adding new generation capacity: placing emphasis on Onshore and Offshore Renewables, Abated and Unabated Natural Gas, Hydrogen, Nuclear and Energy Storage Technologies. None of these alternatives are as good as, or better than, the proposals set out in updated EN-1 which would perform well in terms of achieving the four objectives of the plan:

- Maintain safe and secure supplies of energy;
- Maintain affordable supplies of energy;
- Support the achievement of the goal of net zero by 2050; and
- Provide for high levels of environmental protection.

For these reasons above the Government’s preferred option is to take forward updated EN-1 and the updated technology-specific NPSs (EN-3 and EN-5).

The Government has also considered its objective of ensuring security of supply whilst combating climate change, in the face of increased demand and capacity needing to be replaced. It has considered the alternatives of emphasis on different energy mixes, the likely demand for electricity by 2050 and that electricity supply needs to be decarbonised.

Having considered the alternatives, there is IROPI in adopting this policy which permits new energy infrastructure because security of supply is essential for the maintenance of human health and public safety, and because combating climate change (which is one of the factors creating the demand for new generating capacity) will have beneficial consequences of primary importance for the environment.

The Government is certain that we need new energy infrastructure; we need a system of development consents and a set of criteria against which they will be determined.

The Government is therefore satisfied that there are IROPI in adopting the Energy NPSs.

6.2.5. IROPI for projects and CNP low carbon infrastructure

The case for IROPI set out above relates to the Energy NPSs. HRA of projects coming forward under the NPSs must follow the full HRA process and follow the mitigation hierarchy. IROPI does not automatically apply to individual projects coming forward under the NPSs, even though it applies to the NPSs themselves. Each proposal must be considered on a case-by-case basis. Any project proposals that may have adverse effects on the integrity of a Habitats Site after mitigation, and where there are no less environmentally damaging alternatives, there is automatically considered to be an IROPI case and compensation must be proposed. In the light of Clean Power 2030 and as government has concluded that the provision of new nationally significant low carbon infrastructure is of critical national priority, the updated Energy NPSs contain a clear indication that the government believes this type of development to have an ‘imperative reason of overriding public interest' (IROPI).

7. Compensation

In accordance with guidance[49] should a project or plan proceed through the derogations and satisfy the first two legal tests; it is at this stage that compensatory measures are identified. These measures will need to fully offset the damage which will or could be caused to the Habitats Site.

The competent authority must have confidence that the compensation proposed will deliver the desired outcome and should consider the following:

- Is the proposed compensation technically feasible, based on sound scientific understanding?
- Is there a robust delivery and management plan in place for the duration?
- Where is the proposed compensation in relation to the affected site? Does this affect its efficacy?
- How much time is needed for the compensation to establish to the required quality?
- Is the methodology proposed reasonable or technically proven?
- Are the measures sustainable in the long-term? Will long-term management need to be secured?

In developing suitable compensatory measures, it will be necessary to work with the relevant SNCB. The proposed compensation must not have a negative effect on the national site network as a whole, despite the negative effects of the proposal on one or more Habitats Sites. Compensatory measures can include creating or restoring the same or very similar habitat on areas of little or no conservation value. If the area providing compensatory measures is not within the Habitats Site, it should become designated as part of the site and until that happens, it's protected by government planning policy under the NPPF[50].

Further to the above, there may also be a need for adaptive management, if there is a risk that proposed compensatory measures could prove to be insufficient and not deliver the desired outcome. The effectiveness of compensatory measures needs to be monitored with appropriate targets, that if not met, trigger the need for remedial or adaptive management. Therefore, proposals submitted by the applicant are likely to need to contain specific monitoring and reporting schedules, with clearly identified progress indicators and potential adaptive management measures.

The competent authority should also consider how financially viable the proposed compensation is, and whether there are sufficient funds to cover the long-term costs of the proposed measures.

The appropriate authority must secure the necessary compensatory measures to ensure that the coherence of the national site network of Habitats Sites is protected before consent is given for a project to proceed. The mechanisms for securing compensation will be through the consenting process for individual projects.

7.1.1. Strategic Compensation

The NPSs acknowledge the need for a holistic approach, as supported by the BESS, which has proposed introducing mechanisms to support strategic compensatory measures, including for projects already in the consenting process (where possible), to offset environmental impacts and reduce delays to individual projects. The application of such an approach requires pragmatism as it will only be possible to apply it to similar groups of projects that are related in type and/or location, and/or affected Habitats Site.

This proposal will allow for the development of strategic compensation, which will not only help remove the consenting barriers for individual projects but may lead to wider benefits for habitats, species and the natural environment as a whole. Within EN-1 additional text has been added with regard to considering compensation early and seeking SNCB and Defra/ Welsh Government views with regard to the suitability, securability and effectiveness of the applicant's compensation plan.

[49] https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site
[50] Ministry of Housing, Communities and Local Government (20241) National Planning Policy Framework (NPPF). December 2024. Paragraph 194.

Progress is being made in this area with amendments made to EN-3, including the development of the OWEIP, which will apply to “the planning, construction, operation or decommissioning of offshore wind electricity infrastructure” and the identification of an area for such an activity.

The OWEIP includes measures to:

- revise Marine Protected Area (MPA) assessment guidance (including Habitats Regulations and Marine Conservation Zone (MCZ) Assessments) to streamline and simplify the information applicants must supply;
- revise the Habitats Regulations and MCZ assessment processes for offshore wind to facilitate the delivery of compensation measures whilst maintaining valued protection for wildlife;
- facilitate the delivery of strategic environmental compensation measures to offset environmental effects and reduce delays to projects, including development of a library of compensation measures, through the Collaboration on Offshore Wind Strategic Compensation (COWSC) programme;
- implement an industry funded Marine Recovery Fund (MRF), into which developers can choose to contribute to meet their environmental compensation obligations. It is anticipated that two funds will operate in the UK – one for projects consented in England, Wales and Northern Ireland, and one for projects consented in Scotland;
- develop Offshore Wind Environmental Standards (OWES) to reduce environmental impacts at the point of project design of wind farms and offshore transmission infrastructure, providing greater certainty and reducing delays in the consenting process;
- develop a strategic approach to environmental monitoring.

There are numerous advantages in a co-ordinated approach, including streamlining the consenting process with respect to environmental assessment and improved confidence in the robustness and deliverability of compensation, and it is acknowledged that this approach need not only be applied to the offshore wind development sector.

7.1.2. Compensation at the project level

Without defined impacts, it is not possible to determine what compensatory measures will be required and to what extent they need to be applied at the project level. Any compensation is therefore specific to each project and needs to be fully explored and designed at the project-level HRA. The list of potential compensation considerations below is generic and not exhaustive. Furthermore, these need to provide additionality and not comprise existing ‘site management’ activities in order to have a genuine compensatory effect.

Compensation could include:

- Substantial enhancement of degraded habitat outside a Habitats Site boundary that will support qualifying features affected;
- Creation of comparable habitat elsewhere that will support qualifying features affected;
- Enhancing connectivity of habitat outside a Habitats Site boundary that supports qualifying features affected;
- Species recovery and reinforcement, including reinforcement of prey species (above and beyond requirements to meet conservation objectives);
- Incentives for certain economic activities that sustain key ecological functions (such as coppicing) on land;
- Reduction of (other) threats to the qualifying features affected.

Compensatory measures will need to demonstrate that they are sufficient to offset the harm caused by development. Where possible they should limit harm to the Habitats Site, by ensuring the project is timed so that the compensatory habitat is able to become established before any habitat loss takes place, so as to maintain the conservation status of the qualifying species. However, it is noted that this can be a challenging requirement that can lead to delays. Using a strategic approach to compensation, as outlined above, can remove the time constraint and provide more certainty and, therefore, security.

Compensatory habitat will need to be treated in the same way, with the same importance as Habitats Sites, in line with the NPPF[51], and will be designated as part of the national site network or an extension to the Habitats Site.

7.1.3. Compensation for CNP infrastructure

The addition of CNP infrastructure to the Energy NPS and the critical need to secure and decarbonise our energy supply, set out in support of IROPI, may see more projects coming through the derogations. Where an applicant has shown there are no deliverable alternative solutions, and that there are IROPI, compensatory measures for CNP infrastructure must be secured by the SoS (as the competent authority), to offset the adverse effects to site integrity as part of a derogation.

Government's recent Clean Power 2030 Action Plan states clear objectives as far as avoiding significant environmental impacts for low carbon energy infrastructure. Such objectives include 'ensuring protection of nature is embedded into the delivery of Clean Power 2030' and 'new energy infrastructure should be built in a way that protects the natural environment by following a "mitigation hierarchy" to do what is possible to avoid damage to nature, and then minimising, restoring and delivering compensation when damage is impossible to avoid. This approach is not so much about "balancing" energy and the environmental needs; it's about integrating them. It's about rebuilding natural infrastructure at the same time as building the new energy infrastructure we need'. Given that most of the energy generating technologies identified as CNP are part of the low carbon energy infrastructure that Clean Power 2030 relies on, it is a recommendation of the updated HRA, in relation to Habitats Sites, that Clean Power 2030 stated objectives of rebuilding natural infrastructure need to be embedded in the assessment process of CNP infrastructure by the applicant and in the decisions made by the Secretary of State.

[51] Ministry of Housing, Communities and Local Government (2024) National Planning Policy Framework (NPPF). December 2024. Paragraph 194.

8. Conclusion

The NPS is a high-level document without detail on specific projects. Delivery of the updated NPS in itself will not necessarily result in adverse effects on site integrity on any Habitats Sites. However, any proposed energy infrastructure development needs to be subject to a specific project-level Appropriate Assessment where there is potential to have an LSE on a Habitats Site. Projects will proceed where either it can be exhibited that there would be no adverse effect on the integrity of Habitats Sites or where adverse effect on the integrity cannot be discounted, compensation can be secured.

It is acknowledged that an appropriate assessment of a plan does not have to provide a conclusive answer to all the questions legitimately raised about the potential for significant adverse effect on the integrity of the designated site[52]. In an Opinion of Advocate General Kokott[53] at paragraph 49, she noted that an assessment of plans cannot by definition take into account all effects because "*Many details are regularly not settled until the time of the final permission*" and "[*I*]*t would also hardly be proper to require a greater level of detail in preceding plans or the abolition of multi-stage planning and approval procedures so that the assessment of implications can be concentrated on one point in the procedure. Rather, adverse effects on areas of conservation must be assessed at every relevant stage of the procedure to the extent possible on the basis of the precision of the plan. This assessment is to be updated with increasing specificity in subsequent stages of the procedure*".

For information, alternatives to the updated NPSs were considered, the IROPI case set out and delivery of compensation discussed. If, in due course, individual energy infrastructure projects, following their Appropriate Assessment and despite mitigation, are likely to have a significant adverse effect on a site's integrity and require a derogation to proceed, they may draw on the case for absence of alternative solutions and IROPI as set out in updated EN-1.

Where projects may result in adverse impacts on the integrity of one or more Habitats Sites, sufficient measures must be implemented to avoid and mitigate impacts, and, where if this avoidance and mitigation are not possible, the project must be demonstrated to meet the tests for absence of alternative solutions, IROPI (CNP in the case of low carbon infrastructure) and secure and deliver adequate compensation for any remaining adverse impacts arising from the development. In embracing a holistic approach, as championed by the updated NPSs, where there are multiple projects in planning for which compensation for one or more Habitats Sites would be required, a co-ordinated strategic approach is recommended.

[52] Feeney versus Oxford City Council and the Secretary of State CLG (24th October 2011) Case No CO/3797/2011 and the Cairngorms Campaign and others versus the Cairngorms National Park Authority and others 2012 SOH153

[53] European Commission v UK (2005) ECR I-9017 Case C-6/04

Appendices

Appendix A. Activities potentially affecting qualifying features in the absence of details on location, scale, design, avoidance or mitigation

A.1. Construction activities

- All energy development will include a construction phase and relevant activities and impacts will be similar for all. The effects of marine projects, particularly offshore wind (EN-3), will differ somewhat from other types of infrastructure, as construction traffic will be marine vessels and excavations will be required to the sea floor;
- Earthworks and excavations may result in direct habitat loss, fragmentation, severance or disturbance:
  - Habitat loss and fragmentation could result in the displacement of European interest features from suitable breeding, roosting and foraging grounds to alternate areas. This may have synergistic effects by increasing competition for food resources or protected sites further afield. Where geomorphological processes (e.g. transfer and movement of sediment) that uphold levels of nutrient and sediment input and output are modified, qualifying habitat features such as estuaries, sandbanks or mudflats could be affected;
  - Disturbance may occur to individual species (including rare and sensitive species and those which are specifically protected from disturbance under European Law);
  - Fragmentation may occur where projects either temporarily or permanently isolate/ separate some or part of an Habitats Sites or break interlinkages between them;
  - Some excavations may extend to or below the water table and dewatering may be required as a result. This will change the level of the water table in the locality, which could lead to lower water levels in groundwater fed water bodies and loss of wetland habitats (including groundwater dependent terrestrial ecosystems (GWDTE)). Lower water levels may affect not only the volume of water, and therefore 'space' available for aquatic species, but could alter flow of the waterbody and lead to a decline in water quality, as pollutants and suspended sediment could be more concentrated;
  - Clearance of vegetation, earthworks associated with site preparation works for oil and gas pipelines (EN-4) and pipelines associated with transportation of carbon for storage (EN-1), drilling activities and loss of landscape features, such as hedgerows, will mostly be temporary effects and with adequate mitigation only minor residual long-term landscape impacts should remain.
- Disturbance to the seabed will occur during construction of marine technologies and offshore wind (EN-3), which will have similar impacts to terrestrial earthworks and excavations, as well as:
  - Potential to interact with seabed sediments and therefore have the potential to impact fish communities, migration routes, spawning activities and nursery areas of particular species. This could have knock-on effects on other marine species, including larger fish, mammals and seabirds, due to a change in the availability of prey species;
  - Disturbance of the seabed sediments or release of contaminants can result in indirect effects on habitats and biodiversity.
- Construction can lead to emissions of air pollutants, including nitrous oxides (NO_x), sulphur oxides (SO_x) and particulates. Gaseous emissions, and some particulates may arise from emissions of construction plant and vehicles, and the movement of material in construction can release dust. These can lead to nutrient enrichment and eutrophication at Habitats Sites, which could, if they exceed critical loads, lead to adverse impacts on protected species and habitats. Particulates can also adversely affect respiratory systems of animals;

- Construction works, including offshore piling, may reach noise levels which are high enough to cause injury, e.g. hearing impairment, and there remains the possibility of causing death in marine mammals that are in very close proximity. At lower levels, construction noise and vibration impacts can affect the behaviour, reproductive success and distribution of qualifying features;
- Effects of construction traffic within and to and from the sites are considered under 'vehicle and personnel movements'.

A.2. Water abstraction and discharge

- This applies particularly to developments that utilise water for cooling purposes, namely natural gas (EN-2), biomass and energy from waste plants (EN-3), as well as nuclear power stations and carbon capture plants (EN-1). After cooling, the water will then be discharged into a suitable water body. Discharge may be to the sea, rivers or lakes;
- Water is needed for cooling purposes and may be abstracted from groundwater, the sea, rivers or lakes. Water intake from surface water bodies can lead to:
  - The incidental mortality of fish and other aquatic species, particularly on the intake screens. Fish may be impinged on the intake screens;
  - Zooplankton and phytoplankton can be entrained in the condenser unit and subject to heat and biocide dosing before being returned to the sea;
  - Biocides in the effluent discharge may affect aquatic biodiversity by increasing the build-up of heavy metals, salts and the uptake of toxic compounds may increase species vulnerability to disease and genetic mutation, potentially altering reproduction and dispersal rates;
  - Groundwater abstractions may, where Habitats Sites are hydrologically connected, affect groundwater supply to other areas of valuable habitat including rivers and streams, resulting in habitat degradation potentially affecting migratory fish species (e.g. Lamprey, Shad);
  - Abstraction and/ or addition of water to or in the vicinity of Habitats Sites (particularly the volume, timing and duration of freshwater flows in rivers and estuaries) could affect fish migration and spawning. It could also alter the structure of physical habitats and compromise aquatic plant and invertebrate communities;
  - Changes to groundwater levels as a result of abstraction and / or discharge of water could result in altered base flows in rivers, or impact water levels in important habitats (e.g. marshes).
- The temperature of the discharge will often be above that of the receiving water body and may result in changes to the aquatic ecology by reduce the amount of dissolved oxygen in the water column, creating habitat that favours non-native species and/ or create thermal and chemical barriers to fish migration;
- Discharged cooling water may also affect water quality due to chemical additives added to the cooling system;
- In relation to salt caverns (EN-4), a newly developed salt gas storage facility will require leaching new salt cavities, whether built on the site of an existing salt mine or not. This involves injecting water into the underground strata to dissolve the salt until cavities of sufficient dimension have been formed and then the brine is withdrawn through the same well bore. The issue is the disposal of the brine and the protection of water quality and resources;
- For pumped hydro power, water is released from a higher altitude reservoir to a lower altitude reservoir to generate electricity at times of high demand, then water is pumped back to the higher reservoir at times of low demand. The discharge of water may be of an altered quality or temperature than the received water. In particular, pumping of water to the upper reservoir is likely to result in increased temperatures.

A.3. Changes to drainage

- The drainage of the site may result in altered run-off rates to watercourses which could in turn affect stream hydrology (especially flow rates) and morphology. This has the potential to impact upon water quality and resources. The use of machinery, vehicles and new drainage systems may mobilise soil particles in surface run-off which can result in adverse impacts on aquatic flora and fauna due to increased sediment loading of streams causing a reduction in water quality;

- There may also be an increased risk of spills and leaks of pollutants to the water environment, from vehicles themselves or the materials they are carrying.

A.4. Combustion of materials

- This applies to combustion of natural gas (EN-2) as well as combustion of biomass and waste (EN-3). Flaring/ venting of gas (EN-4) has additional effects covered in the final bullet;
- Emissions from combustion plants are generally released through exhaust stacks. Design of exhaust stacks, particularly height, is the primary driver for the delivery of optimal dispersion of emissions and is often determined by statutory requirements. Different fuels may result in different types of emissions:
  - Combustion technologies can result in release of air pollutants, such as NO_x, SO_x, heavy metals (depending on source material) and particulates. These can lead to nutrient enrichment and eutrophication at Habitats Sites, which could, if they exceed critical loads, lead to adverse impacts on protected species and habitats;
  - Burning natural gas will result in substantial increases in greenhouse gas emissions. Whilst the effect of emissions is not necessarily felt locally, they contribute to global climate change, which can have adverse impacts on habitats and species, by altering the conditions in within their range (or altering their range).
- Flaring of gas (EN-4) is used to deal with a continuous stream of low volume waste gas from the processing. The venting of gas may be undertaken occasionally at facilities when there are relatively low volumes of hydrocarbon gas that need to be disposed of safely, usually associated with commissioning, decommissioning and maintenance operations. The flaring or venting of gas during the operation of a facility is regulated by the Environmental Permitting Regulations (EPR) which are administered by the Environment Agency.

A.5. Vehicle and personnel movements

- The transport of materials, goods and personnel to and from a development, nuclear waste storage facility or carbon storage location can have a variety of impacts on the surrounding transport infrastructure and potentially on connecting transport networks, e.g. disturbance from noise and vehicle movements from road or water transport which could disturb qualifying features;
- The use of vehicles, machinery and movement of personnel on-site also gives rise to the risk of noise and visual disturbance from the site to have an adverse impact on species, in particular sensitive bird species associated with neighbouring SPAs and Ramsar sites;
- Vehicle movements involve emissions to air (such as NOx, SOx and particulates). These can lead to nutrient enrichment and eutrophication at Habitats Sites, which could, if they exceed critical loads, lead to adverse impacts on protected species and habitats;
- Movement of vehicles, personnel and materials onto and off of the site brings a risk of spreading invasive, non-native species.

A.6. Physical presence of site: offshore

- This applies specifically to coastal and marine technologies, tidal stream and offshore wind (EN-3), but may also apply to oil and gas pipelines (EN-4) and pipelines associated with transportation of carbon for storage (EN-1) – see final bullets;
- The construction of an onshore energy project on the coast may involve, for example, dredging, dredge spoil deposition, cooling water, culvert construction, marine landing facility construction and flood protection measures which could result in direct effects on the coastline, seabed and marine ecology and biodiversity. Coastal squeeze impacts are closely related to habitat (and species) loss and fragmentation and relate to situations where the coastal margin is squeezed by a fixed landward boundary – mainly through flood and sea defences, and reinforcement of coastal margins through hard engineering;
- The presence of wind turbines can cause alterations to the wave regime or tide heights, which could have a knock-on impact on marine ecology and biodiversity;

- The resultant movement of sediments, such as sand across the seabed or in the water column, can affect habitat features such as sandbanks;
- Coastal squeeze could prevent and/ or alter the natural transport and movement of coastal material, and impact on species, communities and habitats.
- In terms of offshore wind, mortality rates from collisions with wind turbines may be significant for some species in certain locations and create a direct population decline. Impacts on flight lines (i.e. barrier effect) and associated energetic expenditure for commuting flights may result in a loss of fitness and eventual population decline. Tidal stream can also result in collisions with underwater turbines;
- Loss of intertidal and subtidal habitat, either directly or due to a change in coastal processes. The subtidal zone is the area below the low tide mark which remains submerged at low tide. The loss of subtidal habitat and benthic ecology either through the footprint of an offshore windfarm or tidal stream infrastructure (EN-3), or cable route is an additional issue for consideration. Subtidal ecology may include Annex I features such as *Sabellaria spinulosa* reefs. The intertidal zone is the area between high tide and low tide marks. Intertidal habitat and ecology are often recognised through statutory nature conservation designations. Export cable routes will cross the intertidal zone resulting in temporary habitat loss and disturbance of intertidal ecology, which may support ornithological and other species interest features;
- Oil and gas pipelines (EN-4) and pipelines associated with transportation of carbon for storage (EN-1) may cross estuaries and the marine environment. Impacts of pipelines laid in the offshore environment can include disturbance of marine species or smothering of marine habitats or geological features, from the pipeline or associated dredged materials or rock dump. There may also be impacts on natural coastal and maritime processes such as sediment drift, shoreline erosion and accretion;
- Liquified natural gas (LNG) import facilities (EN-4) may require additional dredging to accommodate LNG vessels. The potential environmental effects of maintenance dredging are generally two-fold, firstly as a result of the dredging process itself, which may release contaminants, and secondly as a result of the disposal of the dredged material. Dredging will be regulated by the Marine Management Organisation.

A.7. Physical presence of site: onshore

- Direct land take (development of the site itself, construction of laydown areas, cooling water infrastructure etc.), induced and ancillary developments (e.g. transport infrastructure) and the construction and maintenance of flood defences could result in the direct loss and degradation of qualifying habitat;
- For pumped hydro storage (EN-3), flooding to form a reservoir is considered under this heading, as it leads to loss of existing habitat;
- The physical presence of buildings and structures on site may cause direct disturbance by affecting flight lines/ lines of sight, light pollution and other forms of visual disturbance or direct mortality of individuals. This may also include the severance of migration corridors and commuting routes for protected species. Creation of a dam for pumped hydro storage is a form of fragmentation, as it could create a barrier along migratory routes;
- Operation of the physical infrastructure on-site can result in noise and vibration impacts. This applies to all NPSs, although some technologies will have greater noise impacts than others. The most disturbing activities are irregular, unpredictable and loud noise events, and vibrations of long duration. There are other activities and outputs, such as tonal noise. Noise and vibration can affect the behaviour, reproductive success and distribution of European interest features;
- Pumped hydro storage (EN-3) changes patterns of hydrology, by creating a dam, resulting in a reservoir. This not only changes an area from terrestrial to aquatic habitat, but it also slows the downstream flow of the river, with this suddenly increased when power is generated.

A.8. Decommissioning and restoration

- During decommissioning there may be risks of continued soil, water and air contamination if hazardous materials are released during decommissioning activities. The risk of this is considered very low given the strict regulatory requirements that would need to be adhered to during decommissioning. A stringent decommissioning strategy would be required together with full EIA prior to decommissioning;

- Decommissioning activities could also include demolition or dismantling of any built infrastructure, which could result in noise and vibration disturbance, as well as visual disturbance. This could also involve excavation and disturbance to the seabed, with similar effects to those recognised under ‘construction impacts’;
- There is also likely to be an increase in vehicle movements during decommissioning. Decommissioning nuclear energy infrastructure will likely result in an increase in long-distance vehicle movements as well as increased vehicles in and around the site, due to the need to transport fuel elements to a nuclear waste management facility. See ‘vehicle and personnel movements’ for likely effects;
- Decommissioning nuclear energy infrastructure may take longer than other types of energy infrastructure, due to the need to defuel the site and treat and remove other radioactive waste. This may include construction of a Safestore facility for the reactor building (see ‘construction activities’);
- Following decommissioning, the site may be restored, presenting an opportunity for habitat creation and thus the enhancement of nature conservation value. The early stages of restoration may have similar effects to construction activities, due to the need for excavations, presence of plant on site and vehicle movements to and from the site;
- Restoration could include:
  - Remediation of contaminated land;
  - Planting and seeding;
  - Fencing (this could be temporary or permanent, depending on the end use);
  - Increased human presence on site.

Atkins Limited
Nova North
11 Bressenden Place
Westminster
London
SW1E 5BY

ecology@atkinsrealis.com