Appendix 2: Other relevant initiatives

Schedule 1 and 2 of the *Environmental Assessment of Plans and Programmes Regulations 2004* (as amended), variously require that within a SEA Environmental Report consideration is given to:

"an outline of the contents and main objectives of the plan or programme, and of its relationship with other relevant plans and programmes" and that consideration is given to the degree to which the "plan or programme influences other plans and programmes including those in a hierarchy"

and;

"the environmental protection objectives, established at international, Community or National level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation".

The following sections outline the main relevant initiatives (including plans and programmes, and environmental protection measures) and statutory measures established at international, UK and UK constituent country level, which are relevant to this plan/programme for those topics listed below. The initiatives are arranged by SEA topic area[1]. Where legislation is listed, these are the most pertinent acts/bills/regulations etc. and are not a definitive list. All should be taken to represent their most recent form, i.e. as amended, including those which make modification as part of the UK's exit from the EU. Legislation transposed from EU Directives, amongst other sources of EU-derived law, will form part of the body of UK "retained EU law" created under the *EU (Withdrawal) Act 2018*, which came into effect on 1st January 2021. Any reference to all or part of a European Directive in the following section is only made to provide context to retained EU law.

The outputs of a number of initiatives provide baseline information in terms of the status of certain areas within the SEA topics and their trajectory (e.g. monitoring and reporting outcomes). The SEA will account for the implications of the other plans and programmes set out below on the draft plan/programme.

[1] As given in Schedule 2(6) of *The Environmental Assessment of Plans and Programmes Regulations 2004* (as amended)

A2.1 Biodiversity, habitats, flora and fauna

Biodiversity, Habitats, Flora & Fauna

International

Convention on International Trade in Endangered Species of Wild Fauna and Flora (1973)
Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat (1971, 1982)
Agreement on the Conservation of African-Eurasian Migratory Waterbirds (1999)
United Nations Convention on Biodiversity (the Rio Convention, 1992)
Convention on the Conservation of Migratory Species of Wild Animals (the Bonn Convention, 1979)
The International Council for the Exploration of the Sea (ICES) Code of Practice for the Introduction and Transfer of Marine Organisms
Strategic Plan for Biodiversity 2011-2020 (UNEP/CBD/COP/DEC/X/2) and the Aichi Biodiversity Targets (UNEP/CBD/COP/10/9) - note Parties are working towards a post-2020 global biodiversity framework, under which the Aichi targets may be reviewed and revised
International Convention for the control of ships ballast water and sediments (adopted 2004, entered into force September 2017)
United Nations Sustainable Development Goals

Regional

Convention for the Protection of the Marine Environment of the North East Atlantic (the OSPAR Convention, 1992)
OSPAR Recommendation 2003/3 on a Network of Marine Protected Areas, and OSPAR Recommendation 2010/2 amending Recommendation 2003/3 on a network of Marine Protected Areas
OSPAR Agreement 2005-6 on the Agreement on Background Concentrations for Contaminants in Seawater, Biota and Sediment
OSPAR List of Threatened and/or Declining Species and Habitats.
Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention, 1979)
Agreement on the Conservation of Small Cetaceans of the Baltic North East Atlantic, Irish and North Seas (1994)
Convention for the Conservation of Salmon in the North Atlantic Ocean (1983)
Council of Europe Strategy on Invasive Alien Species (2003)
OSPAR Quality Status Reports 2000 and 2010, and intermediate assessment 2017
OSPAR Recommendation 2021/05 on furthering the protection and conservation of kelp forest habitat in Region II, III and IV of the OSPAR maritime area
OSPAR Recommendation 2016/3 on furthering the protection and conservation of the Atlantic salmon (*Salmo salar*) in Regions I, II, III and IV of the OSPAR maritime area
OSPAR Recommendation 2016/02 on furthering the protection and conservation of intertidal mudflats in Regions I, II, III and IV of the OSPAR maritime area
OSPAR Recommendation 2016/01 on the reduction of marine litter through the implementation of fishing for litter initiatives and, 2019/01 on the reduction of marine litter through the Implementation

UK

Environment Act 2021
National Parks and Access to the Countryside Act 1949
The Wildlife and Countryside Act 1981
Natural Environment and Rural Communities Act 2006
The Conservation of Offshore Marine Habitats and Species Regulations 2017
The Offshore Petroleum Activities (Conservation of Habitats) Regulations 2001
Marine and Coastal Access Act 2009
The Marine Strategy Regulations 2010
Environment Bill 2019-21
Our Seas - a shared resource. High Level Marine Objectives (2009)
Charting Progress 2 - An Assessment of the State of UK Seas (2010)
Marine Policy Statement (2011)
UK National Ecosystem Assessment (2011) and follow on (2014)
Marine Strategy Part 1: UK Initial Assessment and Good Environmental Status (2012) and update (2019)
Marine Strategy Part 2: UK Marine Monitoring Programmes (2021)
Marine Strategy Part 3: UK Programme of Measures (2015) and consultation (2021)
The Great Britain Invasive Non-native Species Strategy (2015)

UK

A Green Future: Our 25 Year Plan to Improve the Environment (2018)
Marine Science Co-ordination Committee (MSCC) (established 2008) and related working groups
The Natural Capital Committee (2012-2020)
Climate Change Committee (established 2008)
UK Dolphin and Porpoise Conservation Strategy (consultation 2021)
Offshore Wind Evidence and Change Programme

Local

Countryside and Rights of Way Act 2000 (as amended)- *England and Wales*
The Eels (England and Wales) Regulations 2009
The Conservation of Seals Act 1970 (as amended)
The Conservation of Habitats and Species Regulations 2017 (as amended) - England and Wales
National Policy Statements for Energy (2011): - England and Wales - subject to consultation (2021)
Overarching National Policy Statement for Energy (EN-1)
National Policy Statement for Renewable Energy Infrastructure (EN-3)
National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)
The National Planning Policy Framework (2021) - England
Inshore and Offshore Marine Plans (East, South, North East, South East, South West, North West) - England
Biodiversity 2020: A strategy for England's wildlife and ecosystem services (2011) and progress update (2013) - subject to review and update
North Devon Marine Pioneer

Environment (Wales) Act 2016 (including Section 7: Biodiversity lists and duty to take steps to maintain and enhance biodiversity)
The Natural Resources Policy Statement (2017) - Wales
The Nature Recovery Plan for Wales (2015)
Technical Advice Note 5: Nature Conservation and Planning 2009 - Wales
Environment Strategy for Wales (2006) and annual progress reporting (2012)
State of Wales' Natural Resources report (2016)
The Natural Resources Policy Statement (2017) - Wales
Planning Policy Wales, Edition 11 (2021)
Welsh National Marine Plan (2019)

The Conservation (Natural Habitats, &c.) Regulations 1994 - Scotland
Nature Conservation (Scotland) Act 2004
The Freshwater Fish Conservation (Prohibition on Fishing for Eels) (Scotland) Regulations 2008
The Environmental Liability (Scotland) Regulations 2009
Marine (Scotland) Act 2010
Scottish Planning Policy (2014) and the National Planning Framework for Scotland 3 (2014), position statement for NPPF 4 (2020) and consultation of the draft framework (2021)
Scotland's National Marine Plan (2015) and 2021 review
Scotland's Marine Assessment 2020

Priority Marine Features in Scotland's Seas
Scottish Biodiversity Strategy (2004) and report to the Scottish Parliament on progress (2017)
2020 Challenge for Scotland's Biodiversity (2013)
Scottish biodiversity strategy post-2020: statement of intent

Wildlife and Natural Environment Act (Northern Ireland) 2011
The Environment (Northern Ireland) Order 2002
Nature Conservation and Amenity Lands (Northern Ireland) Order 1985
Wildlife (Northern Ireland) Order 1985
Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995
The Environmental Liability (Prevention and Remediation) Regulations (Northern Ireland) 2009
Marine Act (Northern Ireland) 2013
Planning Policy Statement 2: Natural Heritage (2013) - Northern Ireland
Strategic Planning Policy Statement For Northern Ireland (2015) - to be superseded by Local Development Plans
Biodiversity Strategy for Northern Ireland to 2020 (2015)
Strategy for Marine Protected Areas in the Northern Ireland inshore region (2014)

A1.1.1 Key objectives and targets

The *Environment Act 2021* is intended to update and amend environmental protection, primarily in England, following the UK's withdrawal from the EU. This includes the creation of a new independent public body, the Office for Environmental Protection (OEP)[2], which is responsible for taking action in relation to breaches of environmental law, the setting of legally binding targets and environmental principles which must be considered in planning (to be set out in The Statement on Environmental Principles, and, various amendments including in relation to the provisions of the Habitats Regulations (see below). The Act makes the 25 Year Environment Plan a statutory document, being the first Environmental Improvement Plan (EIP), which must be subject to monitoring and annual reporting. Additionally, a new framework work setting long-term legally-binding targets is established covering a range of areas, but at least air quality (with a specific duty on PM2.5 concentrations in ambient air), resource efficiency, waste production, water and biodiversity (with a specific duty to set a target to halt the decline in species abundance by 2030).

Part 2 of the *Conservation of Habitats and Species Regulations 2017* (as amended) provides for the creation of a coherent ecological network of sites made up of Special Areas of Conservation (SACs), which are classified to conserve those species listed in Annex I of the Habitats Directive (92/43/EEC) and habitats listed in Annex II of the Directive; and those sites designated as Special Protection Areas (SPAs) for bird species under Annex I (rare or vulnerable) and II (migratory) of the Wild Birds Directive 2009/147/EC.

The *Conservation of Habitats and Species Regulations 2017* (as amended) consolidates the *Conservation (Natural Habitats, &c.) Regulations 1994* in England and Wales, and also implements certain aspects of the *Marine and Coastal Access Act 2009*, principally the transfer of certain licensing functions from Natural England to the Marine Management Organisation (MMO), and the recognition of Marine Enforcement Officers to be able to use powers under the *Marine and Coastal Access Act 2009* and to enforce offences under the Habitats Regulations, within England, Wales and Scotland (for reserved matters) and their respective territorial seas. *The Environment Act 2021* allows for the Secretary of State to amend regulation 9 of the Habitats Regulations to refocus these on domestic biodiversity priorities, and also regulation 6 on the assessment of effects of plans and projects on relevant sites. In both instances, any amendment may only be made to the Regulations as they apply in England and *inter alia* following consultation, and where the amendments do not reduce the protection afforded by the Regulations. Section 110 of the Act allows Natural England to prepare Protected Site Strategies, including for relevant sites under the Habitats Regulations, SSSIs and MCZs. Such Strategies may include, subject to consultation, an assessment of any impact a plan, project or activity may have on the conservation management of a site (individually and cumulatively), Natural England's opinion on measures that would be appropriate to avoid, mitigate or compensate for any adverse impact, identify a plan. Project or activity considered to be necessary for the purposes of conservation management of the site, any other matter considered to be relevant to site management. Any undertaking in relation to the *Conservation of Habitats and Species Regulations 2017*, and those Acts relevant to SSSIs and MCZs, would need to take account of such strategies.

The devolved administrations of Scotland and Northern Ireland implement the *Habitats Directive* though the *Conservation (Natural Habitats, &c.) Regulations 1994* (as amended) in Scotland, and the *Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995*

[2] Note that while the Act largely applied to England, Part 2 allows for the OEP to exercise its functions in Northern Ireland, subject to the approval of the Northern Ireland Assembly.

(as amended) in Northern Ireland. The Wild Birds Directive is also implemented through the above Regulations, and also through the *Wildlife & Countryside Act 1981* (as amended), the *Wildlife (Northern Ireland) Order 1985* and the *Nature Conservation and Amenity Lands (Northern Ireland) Order 1985* (as amended). The *Conservation of Offshore Marine Habitats and Species Regulations 2017* (as amended) apply beyond territorial sea (beyond 12nm). The *Offshore Petroleum Activities (Conservation of Habitats) Regulations 2001* (as amended) cover Habitats Regulations Assessment requirements for activities authorised under the *Petroleum Act 1998*, Part 1 of the *Energy Act 2008* (Gas Importation and Storage), or any Petroleum Act or Energy Act licence (e.g. oil and gas exploration and production, carbon dioxide appraisal and storage and gas storage, offshore pipelines).

Under the *Conservation of Habitats and Species Regulations 2017* (as amended), regulation 37 (or 28 and 33 for the Northern Ireland and Scottish Regulations respectively) requires that the conservation bodies (e.g. Natural England, Joint Nature Conservation Committee (JNCC), Natural Resources Wales (NRW), NatureScot, Northern Ireland Environment Agency (NIEA)) produce advice on the conservation objectives for marine sites and activities likely to cause deterioration/disturbance to qualifying site habitats and/or species. Such advice has been previously produced by each body, and conservation advice packages are currently being reviewed or produced for a range of MPAs by Natural England under both regulation 37 (SACs and SPAs) and the *Marine and Coastal Access Act 2009* (for Marine Conservation Zones, see below).

The *Wildlife and Countryside Act 1981* (as amended) is one of the principal pieces of legislation relating to nature conservation in Great Britain. Although protection under the Act generally includes adjacent territorial seas (12nm), for certain species protection is limited to 6nm from coastal baselines[3] due to the interaction with the Common Fisheries Policy[4] and for the designation of Marine Nature Reserves out to 3nm. The Act is supplemented by various other pieces of legislation including the *Countryside and Rights of Way Act 2000* (in England and Wales) and the *Nature Conservation (Scotland) Act 2004* (in Scotland). In Northern Ireland, the main legislation is contained in the *Wildlife (Northern Ireland) Order 1985* (as amended) and the *Environment (Northern Ireland) Order 2002*. This legislation provides for the protection of species and the designation of nationally important sites known as Sites of Special Scientific Interest (SSSI) in England, Wales and Scotland and as Areas of Special Scientific Interest (ASSI) in Northern Ireland. SSSI sites have until present extended only to Mean Low Water (e.g. intertidal areas), though the *Marine and Coastal Access Act 2009* (see below for further details) has allowed for all new SSSIs to extend below this line should features extend into the intertidal area.

The *Environmental Damage (Prevention and Remediation) Regulations 2015* (as amended) (separate regulations apply in the devolved administrations) applies to environmental damage caused to *inter alia* species and habitats protected through SACs and SPAs.

The *Environment (Wales) Act 2016* (as amended) covers a range of environmental issues including, most relevant to this SEA: sustainable management of natural resources, climate change, fisheries for shellfish and marine licensing, and flood and coastal erosion and land drainage. A number of reporting duties are placed on NRW including the preparation of a State of Natural Resources Report (SNRR) and Area Statements, which are to set out an

[3] *The Territorial Sea (Baseline) Order 2014*

[4] Note the approach to the management of fisheries in UK waters may change within the timescale of OESEA4, following the UK's exit from the EU on 1st January 2021.

assessment of natural resources and how well they are being managed, and the priorities, risks and opportunities for managing natural resources sustainably and what action they will take. The Welsh Government will produce a National Natural Resources Policy (NNRP) that sets out the priorities and opportunities for managing our natural resources sustainably, taking account of the SNRR and the extant Natural Resources Policy Statement.

The *Marine Strategy Regulations 2010* (as amended) establishes a framework for measures to achieve or maintain good environmental status (GES) in the marine environment by the year 2020. There are eleven qualitative descriptors for determining GES. While they are relevant to a range of SEA topic areas, these are reproduced below as they are variously referred to in later sections:

1. Biological diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions.
2. Non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystems.
3. Populations of all commercially exploited fish and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock.
4. All elements of the marine food webs, to the extent that they are known, occur at normal abundance and diversity and levels capable of ensuring the long-term abundance of the species and the retention of their full reproductive capacity.
5. Human-induced eutrophication is minimised, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algae blooms and oxygen deficiency in bottom waters.
6. Sea-floor integrity is at a level that ensures that the structure and functions of the ecosystems are safeguarded and benthic ecosystems, in particular, are not adversely affected.
7. Permanent alteration of hydrographical conditions does not adversely affect marine ecosystems.
8. Concentrations of contaminants are at levels not giving rise to pollution effects.
9. Contaminants in fish and other seafood for human consumption do not exceed levels established by legislation or other relevant standards.
10. Properties and quantities of marine litter do not cause harm to the coastal and marine environment.
11. Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment.

As part of the implementation of the Marine Strategy Regulations, the UK Government released Marine Strategy Part 1: UK Initial Assessment and Good Environmental Status

(2012), which was updated in 2018. The Marine Strategy Part 2, first published in 2014, and updated in March 2021[5] provides a description of the UK's marine monitoring programmes to support the targets and indicators set out for each of the eleven MSFD descriptors, and the UK's proposed programme of measures to maintain or achieve GES was published in December 2015, with a revision subject to consultation in September-November 2021[6].

Included in measures to achieve GES is the establishment of a cohesive network of Marine Protected Areas (MPAs) which is intended to build on the areas already protected in the UK by the Habitats Regulations. Sites established under the *Marine and Coastal Access Act*, and Acts of the devolved administrations, will aid the completion of such a network of MPAs, which is also a requirement of other commitments regarding MPAs under international conventions such as the Convention on Biological Diversity. These sites which may be designated both within territorial and offshore waters are known as Marine Conservation Zones (MCZs) in England, Wales and Northern Ireland, and Marine Protected Areas (MPAs) in Scotland, administered at the local level in each UK constituent country.

The MCZ project in England and Wales was initially delivered through four regional projects administered by Natural England and the JNCC, covering the South-West (Finding Sanctuary), Irish Sea (Irish Sea Conservation Zones), North Sea (Net Gain) and Eastern Channel (Balanced Seas). The sites were selected based on representative habitat and species features (termed Features of Conservation Importance, FOCI), subject to consultation with a range of relevant stakeholders, and to several rounds of consideration by the Science Advisory Panel (SAP) prior to recommended sites being submitted in 2011. The result was the identification of 127 recommended MCZs and Reference Areas (sites within which strict environmental protection measures essentially made them hard constraints on certain marine activities). Formal advice was then given to Government in July 2012 by JNCC and Natural England, with 27 sites being designated in 2013 following consultation. Some sites were not designated in this first tranche due to a lack of robust evidence to support the presence or nature of certain FOCI, or their potential impact on activities such as renewable energy cable landfall. Subsequently, an additional 23 sites were designated in January 2016 followed by a further 43 sites and 12 additional features in 2019. A review into Highly Protected Marine Areas (HMPAs) was undertaken between 2019 and 2020 led by former Environment and Fisheries Minister Richard Benyon (the Benyon Review[7]) which made recommendations including that HMPAs should be introduced in conjunction with existing MPAs, setting objectives to allow full recovery of such sites and where extractive, destructive and depositional uses are prohibited.

Scottish territorial and offshore waters, and the territorial waters of Wales and Northern Ireland, are subject to their own programmes of MCZ/MPA identification and designation. In UK offshore waters adjacent to Scotland, MPAs are being identified through a Scottish Marine Protected Area Project under the *Marine and Coastal Access Act 2009*, with those in Scottish Territorial Waters through the *Marine (Scotland) Act 2010*. The Scottish MPA project identified proposals for 33 MPAs and 4 MPA search locations yet to be fully assessed which were consulted on in 2013. 30 of the sites were designated in 2014 under Marine Protected Area Orders, and the Fair Isle Demonstration & Research MPA was designated in 2016. The West of Scotland MPA was designated in September 2020, followed by an additional four inshore MPAs in December 2020. Additionally, an urgent MPA designation was made in March 2021

[5] https://www.gov.uk/government/publications/marine-strategy-part-two-uk-marine-monitoring-programmes
[6] https://consult.defra.gov.uk/uk-marine-strategy-programme-of-measures-3/uk-marine-strategy-part-3/
[7] https://www.gov.uk/government/publications/highly-protected-marine-areas-hpmas-review-2019

(the Red Rocks and Longay MPA) to protect a flapper skate egg nursery, with management provisions prohibiting certain activities, initially for 12 months.

In Wales, the Welsh Assembly Government (WAG) is running the Wales MCZ Project, with potential MCZs identified by the Task and Finish Group. The Welsh Assembly Government intends to use the new MCZ powers to supplement the existing network of marine protected areas (e.g. offshore SACs) with a limited number of highly protected sites.

The Department of Environment (Northern Ireland) published, A draft Strategy for Marine Protected Areas in the Northern Ireland Inshore Region, for consultation in May 2013. The strategy outlines the approach in Northern Ireland to the creation of MCZs in their territorial waters, which will be designated under the *Marine Act (Northern Ireland) 2013*. Strangford Lough was the first MCZ in Northern Ireland, replacing its former designation as a Marine Nature Reserve under the *Nature Conservation and Amenity Lands (Northern Ireland) Order 1985*. Four additional MCZs were designated in Northern Irish waters in 2016.

The High Level Marine Objectives agreed by the UK Government and Devolved Administrations set out an approach to the sustainable use of UK seas, including the recognition that healthy marine habitats and ecosystems, species and biodiversity should be maintained and where appropriate recovered. These objectives underpin the Marine Policy Statement (MPS), and the next stage of marine planning has been complete other than for Northern Irish Waters. Plans were produced for Scotland (2015), Wales (2019) and England (2014-2021), with further regional planning taking place in Scotland.

A number of potential impacts on the natural environment from energy developments relevant to OESEA4 are identified in the MPS. More widely and in relation to all marine activities, high level environmental considerations are provided by reaffirming the conservation responsibilities of the UK Government which are to be taken account of in the preparation of Marine Plans. This includes the commitment to establishing a UK network of MPAs incorporating MCZ designations under the *Marine and Coastal Access Act 2009* (see above) and existing and future marine sites including SACs and SPAs.

Northern Ireland are presently developing their own National marine plan under the *Marine and Coastal Access Act 2009* for offshore waters, with inshore marine planning to be covered by the *Marine Act (Northern Ireland) 2013*. The plan was consulted on in 2018 but is yet to be adopted.

The UK Biodiversity Action Plan (UKBAP) provided a national strategy for the conservation of biological diversity and the sustainable use of biological resources as required under Article 6 of the Rio Convention. A number of species (1,150) and habitats (65) were identified as being priorities for conservation action in the UK, and these include a number of marine components, for instance 28 BAP habitats are marine. Though the plans for these species and habitats have no statutory status, they are given some legal basis in the *Countryside and Rights of Way Act 2000* and the *Natural Environment and Rural Communities Act 2006* (e.g. list of species of principal importance designated under Sections 41 and 42 of the Act). UKBAP was succeeded by the UK Post-2010 Biodiversity Framework in 2012, produced by JNCC and Defra on behalf of the UK and devolved administrations, and covering the period 2011-2020. The Framework was the Government's response to the Convention on Biological Diversity's Strategic Plan for Biodiversity 2011-2020 and its five strategic goals and 20 "Aichi Targets", and the EU Biodiversity Strategy. A post-2020 Biodiversity Framework is to be developed, with adoption of the plan anticipated during the second phase of the UN Biodiversity Conference in 2022.

National Policy Statements published in 2011 (and currently under review) were aimed at providing a policy steer for Nationally Significant Infrastructure Projects (NSIPs) as detailed in the *Planning Act 2008*. Those which are of close relevance to OESEA4 are:

- Overarching National Policy Statement for Energy (EN-1)
- National Policy Statement for Renewable Energy Infrastructure (EN-3)
- National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)

Each National Policy Statement was subject to an Appraisal of Sustainability (AoS) incorporating Strategic Environmental Assessment and Habitats Regulations Assessment (HRA). The Overarching National Policy Statement for Energy (EN-1) contains policy in relation to, amongst other considerations, generic biodiversity impacts; whereas the energy specific policy statements contain more detailed considerations, although still at a high policy level. Each National Policy Statement contains considerations relevant to potential impacts on the natural environment, including that within the remit of the plan/programme, such as birds, marine mammals, fish and intertidal habitats. Decisions made by the relevant authority with regards to NSIPs must also be taken with regard to the MPS and any relevant Marine Plan. The *Environment Act 2021* includes a number of provisions in relation to biodiversity which includes biodiversity net gain. The Act requires that biodiversity net gain be secured through the planning system, with an increase in 10% in biodiversity following completion of a project compared to before development took place. This does apply to consents made under the *Planning Act 2008* but does not yet apply to projects in marine areas, however, amendments made to the Planning Act in Schedule 15 of the *Environment Act* allow for net gain provisions to be applied in the marine area at a future date.

In addition to threats posed from marine development and climate change, the marine environment has recently been subject to a number of introduced species which have led to a series of localised changes in community composition. A number of national and international initiatives exist aiming to recommend and introduce safeguards to limit the transport of invasive species, including the International Convention for the Control and Management of Ships' Ballast Water and Sediments and the Great Britain Invasive Non-native Species Strategy.

A1.1.2 Implications for SEA

The SEA considers the implications of the plan/programme and its alternatives in relation to the current location of nationally and internationally important sites and the species, or habitats for which they are designated, and any sites which are currently being considered for designation. Additionally, the SEA considers the wider UKCS baseline based on presently available evidence, establish its trajectory, any environment issues, and information gaps. The SEA considers the potential implications of the plan/programme on attaining good ecological/environmental status of both marine and coastal/estuarine waters under the retailed EU law implementing the Water Framework Directive (WFD) and Marine Strategy Framework Directive (MSFD), in the context of the wider range of legislative and other measures in place or available to help avoid any likely significant effects.

A2.2 Geology, substrates & coastal processes

Geology, Substrates & Coastal Processes

International

The Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972 (the London Convention) and 1996 Protocol Thereto (amendment on the storage of CO_2 in geological formations came into force 10 February 2007).
GEBCO Seabed 2030 (launched 2017)

Regional

OSPAR Recommendation 2003/3 on a Network of Marine Protected Areas
OSPAR Agreement 2005-6 on the Agreement on Background Concentrations for Contaminants in Seawater, Biota and Sediment
OSPAR Recommendation 2006/5 on a management regime for offshore cuttings piles
OSPAR Decision 2007/2 on the Storage of Carbon Dioxide Streams in Geological Formations
OSPAR Recommendation 2016/02 on furthering the protection and conservation of intertidal mudflats in Regions I, II, III and IV of the OSPAR maritime area
OSPAR Intermediate Assessment 2017

UK

The Wildlife and Countryside Act 1981 (as amended)
The Conservation of Habitats and Species Regulations 2017 (as amended)
The Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended)
Marine and Coastal Access Act 2009 (as amended)
The Marine Strategy Regulations 2010 (as amended)
The Storage of Carbon Dioxide (Licensing etc.) Regulations 2010 (as amended)
The Energy Act 2008 (Consequential Modifications) (Offshore Environmental Protection) Order 2010
The Energy Act 2011 (as amended)
The UK Marine Policy Statement (2011)
Geological Conservation Review (GCR)
Local Geological Sites, including Regionally important Geological and Geomorphological Sites (RIGS)
Flood and coastal erosion risk management: policy statement (2020)
National Coastal Erosion Risk Mapping Project (2018, ongoing)
Coastal monitoring and historical coastal change (2021)
The MCA Civil Hydrography Programme
NERC Marine Environmental Mapping Programme (MAREMAP)
Marine Strategy Part 1: UK Initial Assessment and Good Environmental Status (2012) and update (2019)
Marine Strategy Part 2: UK Marine Monitoring Programmes (2021)
Marine Strategy Part 3: UK Programme of Measures (2015) and consultation (2021)
River Basin Management Plans for respective administrations, including those which are cross-border
Flood Risk Management Plans in respective administrations
Carbon Capture Usage and Storage Deployment Pathway (2018) and CCUS cluster sequencing
Ten Point Plan for a Green Industrial Revolution (2020) and the Energy White Paper (2021), and The Net Zero Strategy (2021), for CCUS aspects

Local

Coast Protection Act 1949 (as amended) - England and Wales
Countryside and Rights of Way Act 2000 (as amended) - England and Wales
National Policy Statements for Energy (2011): - England and Wales (subject to review)
Overarching National Policy Statement for Energy (EN-1)
National Policy Statement for Renewable Energy Infrastructure (EN-3)
National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)
East (2014) and South (2018) Inshore and Offshore Marine Plans - England
A Strategy for Promoting an Integrated Approach to the Management of Coastal Areas in England
National flood and coastal erosion risk management strategy for England (2021)
Flood and coastal erosion risk management: policy statement (2020)
Shoreline Management Plans - England and Wales
Marine Aggregate Levy Sustainability Fund (MALSF) Regional Environmental Characterisations including : South Coast, Thames, East Coast and the Humber areas.
The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (as amended)
A Green Future: Our 25 Year Plan to Improve the Environment (2018)
National Planning Policy Framework (2021)

Technical Advice Note 5: Nature Conservation and Planning (2009) - Wales
Technical Advice Note 14: Coastal Planning (1998) - Wales
Technical Advice Note 15: Development and Flood Risk (2004) - Wales
Marine Conservation Zone Task and Finish Group Wales (ongoing)
National Strategy for Flood and Coastal Erosion Risk Management in Wales (2020)
State of Wales' Natural Resources report (2020)
The Natural Resources Policy Statement (2017) - Wales
Planning Policy Wales, Edition 11 (2021)
Welsh National Marine Plan (2019)

Marine (Scotland) Act 2010 (as amended)
The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) - Scotland
Water Environment and Water Services (Scotland) Act 2003 (as amended)
Flood Risk Management (Scotland) Act 2009 (as amended)
The Storage of Carbon Dioxide (Licensing etc.) (Scotland) Regulations 2011 (as amended)
The Scottish Coastal Forum and Local Coastal Partnerships (established 1996)
Scottish Planning Policy (2014, note that the 2020 SPP was withdrawn following legal challenge) and the National Planning Framework for Scotland 3 (2014), and consultation draft on the National Planning Framework for Scotland 4 (draft published 2021)
Scotland's National Marine Plan (2015)
The Scottish MPA Project (ongoing)
Dynamic Coast: Scotland's Coastal Change Assessment (2017)

Marine (Northern Ireland) Act 2013 (as amended)
Earth Science Conservation Review (Northern Ireland)
An Integrated Coastal Zone Management Strategy for Northern Ireland 2006-2026 (2006)
Marine Conservation Zone project
Planning Policy Statement 15: Planning and Flood Risk (2014) - Northern Ireland
Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017 (as amended)
The Marine Plan for Northern Ireland (consultation, 2018)

A1.2.1 Key objectives and targets

The Geological Conservation Review (GCR), launched in 1977, identifies the most important (nationally and internationally) terrestrial geological sites in Britain. GCR sites are chosen such that they satisfy the legal requirements of SSSI designations for geology and physiography, and therefore they often geographically coincide with notified Earth Science-SSSIs (e.g. in Scotland 77% of sites are designated in such a way) or those which are awaiting notification. The *Marine and Coastal Access Act 2009* also amends the *Wildlife and Countryside Act 1981* in such a way that SSSI notifications can be made in England and Wales below the Mean Low Water Mark (MLWM) under certain statutory conditions, set out in the Act (e.g. the flora, fauna or features leading to the notification of the SSSI are also present in the subtidal area to which SSSI protection is to extend). The Act also provides powers to remove SSSI notifications where they coincide with new MCZs in England and Wales. Locally important sites are recognised through the Regionally Important Geological and Geomorphological Sites (RIGS) programme, though only SSSI features have any form of statutory protection.

In the marine environment, many geological features are gaining protection through designations for which they are a qualifying habitat feature (e.g. SACs designated under the *Conservation of Habitats and Species Regulations 2017* (as amended), or *Conservation of Offshore Marine Habitats and Species Regulations 2017* (as amended)). The *Marine and Coastal Access Act 2009*, the *Marine (Scotland) Act 2010* and the *Marine Act (Northern Ireland) 2013* provide a means for the conservation of specific "features of geological and geomorphological interest" through the designation of MCZs or MPAs. The number of sites subject to consultation by the relevant conservation bodies have been summarised above in relation to Biodiversity, Habitats, Flora and Fauna. The location of these sites and features for which they are to be designated are mapped and discussed in the Environmental Report.

At the coast, natural denudation processes are leading to shoreline retreat and increased flood risk in many cases, which may be accentuated by projected climate and associated environmental change, which is projected to include increased storminess and sea-level rise (see Climate & Meteorology, below), and is recognised in national climate change adaptation programmes. Integrated Coastal Zone Management and appropriate planning policy aims to help manage and mitigate the problems associated with *inter alia* coastal erosion and flood risk, as well as ensuring that development, including energy development, progresses such that it takes account of climate change related impacts. The *Flood and Water Management Act 2010* (England and Wales), the *Flood Risk Management (Scotland) Act 2009* and the *Water Environment (Floods Directive) Regulations (Northern Ireland) 2009* make provisions for the creation of flood risk (and in the case of England and Wales, coastal erosion) management strategies/plans. In addition to these, terrestrial and marine planning policy for England (including in relation to NSIPs) and the devolved administrations provides policy and guidance for developers and authorities on how to manage development at the coast, incorporating aspects relating to climate change (such as increased sea-levels) and the prohibition of unnecessary or inappropriate development in areas subject to erosion and coastal flooding (e.g. the creation of Coastal Change Management Areas). Shoreline Management Plans (SMP) (In England and Wales) have taken a longer-term view by identifying sustainable management approaches of relevance for up to the next 100 years. Each SMP provides policy recommendations for coastal areas which may advise Holding the Line (HTL), through the maintenance of present defences or where monitoring and assessment provide evidence that new defences would be beneficial; No Active Intervention (NAI), where defences are not maintained and Managed Realignment (MR) or Retreat (R), where defences are removed and/or moved inland to allow for natural coastal denudation. Policies are provided in each SMP over three 'epochs', 2009-2025, 2025-2055 and 2055-2105.

The *Water Environment (Water Framework Directive) (England and Wales) Regulations 2017* (and those equivalent Regulations of the devolved administrations) seek to achieve good ecological and chemical status for coastal and estuarine water bodies. River Basin Management Plans (RBMPs) completed under the relevant Regulations should be used in combination with other plans including SMPs to achieve a fully integrated approach to coastal management. RBMPs identify relevant morphological and hydrodynamic issues and the measures to manage such issues. Similarly, the *Marine Strategy Regulations 2010* (as amended) seek to achieve good environmental status in the marine environment, which incorporates geomorphological conditions. These objectives, aligned with the currently adopted Marine Plans, should provide a holistic consideration of the geological aspects of the marine and terrestrial environment across the intertidal and coastal areas of the UK.

Internationally, the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972 (the London Convention) and 1996 Protocol provide environmental law for the permanent storage of carbon dioxide in geological formations. The amendments to the 1996 Protocol, which entered into force on 10th February 2007, state that, "carbon dioxide streams may only be considered for dumping, if: disposal is into a sub-seabed geological formation; they consist overwhelmingly of carbon dioxide (they may contain incidental associated substances derived from the source material and the capture and sequestration processes used); and no wastes or other matter are added for the purpose of disposing of them." OSPAR Decision 2007/02 on the Storage of Carbon Dioxide Streams in Geological Formations, states that all contracting parties should not allow storage of carbon dioxide in geological formations without authorisation or regulation from their competent authorities. The decision also indicates what any permit or approval should, at least, contain:

1. a description of the operation, including injection rates;
2. the planned types, amounts and sources of the CO_2 streams, including incidental associated substances, to be stored in the geological formation;
3. the location of the injection facility;
4. characteristics of the geological formations
5. the methods of transport of the CO_2 stream;
6. a risk management plan that includes:
    a. monitoring and reporting requirements ;
    b. mitigation and remediation options including the pre-closure phases; and
    c. a requirement for a site closure plan, including a description of post-closure monitoring and mitigation and remediation options; monitoring shall continue until there is confirmation that the probability of any future adverse environmental effects has been reduced to an insignificant level.

The *Energy Act 2008* (as amended) provides a legislative basis permitting carbon storage on the UKCS, implemented by the Secretary of State or Scottish Ministers in their Territorial Seas via the *Storage of Carbon Dioxide (Licensing etc.) Regulations 2010* (as amended) and the *Storage of Carbon Dioxide (Licensing etc.) (Scotland) Regulations 2011* (as amended). Suitable formations may consist of saline aquifers, halite deposits or depleted hydrocarbon

reservoirs. The *Energy Act 2011* (as amended) makes a number of amendments to the *Energy Act 2008* with regards to the conversion of installations and pipelines for CCS demonstration along with a number of other provisions, including details relating to compulsory acquisition for CCS pipelines over land. There have been a number of studies or initiatives in recent years which have sought to identify the potential for re-use of the current oil and gas assets on the UKCS for carbon dioxide transport and storage[8]

A1.2.2 Implications for SEA

Activities which arise from adoption of the plan/programme should, through national (including devolved) planning policy and environmental regulation, avoid significant impact on geological features of conservation interest including coastal GCRs and geological SSSIs. MCZs may be designated for features of geological and geomorphological interest, including by extending earth science SSSIs to below the low water mark, with coastal Geological Conservation Review sites also available for consideration. A number of MCZs designations include geological characteristics which include intertidal and subtidal habitats. UK RBMPs and SMPs have provided an ecological and morphological baseline for UK estuaries and coasts which may be influenced by plan/programme activities, for instance the use of tidal range technologies could have implications for both estuarine morphology and ecology and the achievement of good ecological status. In addition to these surficial geological features, the storage of carbon dioxide Regulations make provisions for the appropriate use of geological formations for the storage of carbon dioxide, including under the seabed. These are considered in this Environmental Report, and will also be important considerations at a development specific level.

[8] For example, BEIS (2020) Carbon capture, usage and storage (CCUS) projects: re-use of oil and gas assets: https://www.gov.uk/government/consultations/carbon-capture-usage-and-storage-ccus-projects-re-use-of-oil-and-gas-assets

A2.3 Landscape/seascape

Landscape/Seascape

International

World Heritage Convention 1972
Council of Europe: European Landscape Convention 2000

UK

Marine and Coastal Access Act 2009 (as amended)
UK Marine Policy Statement (2011)
An approach to seascape character assessment (2012)
An approach to seascape sensitivity assessment (2019)

Local

National Parks and Access to the Countryside Act 1949 - England and Wales
Environment Act 1995 - England and Wales
Countryside and Rights of Way Act 2000 - England and Wales
National Policy Statements for Energy (2011): - England and Wales (subject to review)
Overarching National Policy Statement for Energy (EN-1)
National Policy Statement for Renewable Energy Infrastructure (EN-3)
National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)
Inshore and Offshore Marine Plans - England
Seascape Character Assessments associated with Marine Plans
Landscapes review: National Parks and AONBs (2019)
The National Character Areas of England
England Coast Path: improving public access to the coast (ongoing)
English Heritage Historic Landscape and Seascape Characterisations
Historic England's Heritage 2020, and Corporate Plan (2018-2021)
Historic Environment Good Practice Advice in Planning Note 3: The Setting of Heritage Assets, 2nd Edition (2017)
Commercial Renewable Energy Development and the Historic Environment (2021)
A Green Future: Our 25 Year Plan to Improve the Environment (2018)
National Planning Policy Framework (2021)

Local Seascape Character Assessment (Pembrokeshire Seascape Character Assessment, Landscape and seascapes of Eryri (Snowdonia), Anglesey seascape character assessment) - Wales (2013-onwards)
LANDMAP Wales
Cadw/ICOMOS Register of Landscapes of Outstanding Historic Interest or Special Historic Interest
National Landscape Character Areas - Wales (2015)
National Seascape Assessment for Wales (2015)
State of Wales' Natural Resources report (2020)
Technical Advice Note 12: Design (Wales) (2016)
Planning Policy Wales, Edition 11 (2020)
Welsh National Marine Plan (2019)
Welsh seascapes and their sensitivity to offshore developments (2019)

Local

Planning etc. (Scotland) Act 2006 (as amended)
Marine (Scotland) Act 2010 (as amended)
The Town and Country Planning (National Scenic Areas) (Scotland) Designation Directions 2010
SNH's Landscape policy framework (under review)
People, Place and Landscape: A position statement from NatureScot and Historic Environment Scotland, and Action Plan (2019)
Scottish Planning Policy (2014) and the National Planning Framework for Scotland 3 (2014), and consultation draft on the National Planning Framework for Scotland 4 (draft published 2021)
Scotland's National Marine Plan (2015)
Landscape and the Historic Environment – A Common Statement (2016)

The Nature Conservation and Amenity Lands (Northern Ireland) Order 1985
Marine (Northern Ireland) Act 2013 (as amended)
The Marine Plan for Northern Ireland (consultation, 2018)
Strategic Planning Policy Statement for Northern Ireland (2015)
Landscape Character Areas of Northern Ireland (2006)
Planning Policy Statement 18: Renewable Energy and Wind Energy Development in Northern Ireland's Landscapes (2009), and supplementary guidance on Wind Energy (2010)
Northern Ireland's Landscape Charter (2014)
Northern Ireland Regional Seascape Character Assessment (2014)

A1.3.1 Key objectives and targets

At the highest level, the European Landscape Convention (ELC) seeks to "promote landscape protection, management and planning, and to organise European co-operation on landscape issues." (Ch. 1 Art. 2), and encompasses "the entire territory of the Parties and covers natural, rural, urban and peri-urban areas. It includes land, inland water and marine areas. It concerns landscapes that might be considered outstanding as well as everyday or degraded landscapes" (Ch. 1 Art. 1), and therefore considers that all landscapes are important, not just the outstanding but also the everyday landscapes where most people live, work and spend much of their time. The perception of landscape and seascape can go beyond that which is purely visual, and be valued in different ways (e.g. as source of economic gain, or by providing a sense of identity or wellbeing), recognised in the ELC definition of landscape, "An area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors."

The ELC requires, "landscape to be integrated into regional and town planning policies and in cultural, environmental, agricultural, social and economic policies, as well as any other policies with possible direct or indirect impacts on landscape (Article 5 (d)). The ELC has been acknowledged in policy including the MPS which states that all coastal landscapes should be considered when developing marine plans, not just those which are protected through designations. Consistent with the MPS, England's marine plans and Scotland's National Marine Plan both recognise that planners and developers generally take landscape and seascape into account, and as part of the process for English and Welsh plans, seascape studies have been undertaken to characterise marine areas. The seascape project for Welsh waters[9] is complemented by a number of local studies (the Pembrokeshire Seascape Character Assessment, Landscape and seascapes of Eryri (Snowdonia) and Anglesey seascape character assessment), and the sensitivity of Welsh seascapes to offshore developments has recently been assessed.

[9] https://naturalresources.wales/evidence-and-data/maps/marine-character-areas/?lang=en

The MPS arising from the *Marine and Coastal Access Act 2009* (as amended) was issued in March 2011. The MPS states that all coastal landscapes should be considered in the preparation of Marine Plans, not just those which are protected through designations, which is broadly complementary to the tenets of the European Landscape Convention (e.g. see policy SOC3 in the East inshore and Offshore Marine Plans, and those SCP-1 policies in the other English Marine Plans, SOC_07: Seascapes and Seascape in the Welsh and draft Northern Irish plans respectively). The East Inshore and Offshore marine planning process involved the commissioning of a methodological pilot study for seascape assessment, which was developed by Natural England and formalised in, An approach to Seascape Character Assessment, which underpinned a series of seascape characterisations developed for the marine plan areas. More recently (2019), the MMO has published guidance on how to assess seascape sensitivity.

In addition to direct considerations of landscape, the MPS and the *Marine and Coastal Access Act 2009* provide a legal and policy framework for the construction of a new national coastal trail in England and amenity land associated with this route which the public is free to use. The scheme for the implementation of this part of the Act in England and its methodology was drafted by Natural England and approved in 2010. Work is in progress on a number of stretches of coastal path, and Natural England hopes to have all stretches approved and work underway towards completion of these by the end of 2021, though some work may start later[10]. The *Marine (Scotland) Act 2010* makes no similar provisions though both Scotland and Wales are planning their own equivalent trails. The Welsh route opened in 2012, with improvements and additional routes planned in the coming years. These coastal and national trails may not have a significant impact on seascape, but it is possible that they will encourage more people to visit the coast for recreation and hence enhance the number of receptors subject to views which could be altered by elements of the plan.

Planning policies, for instance The National Planning Policy Framework and the Energy National Policy Statements (e.g. EN-1 and EN-3), exact the highest degree of protection to nationally designated sites (i.e. statutory designated areas such as Ares of Outstanding Natural Beauty (AONBs) and National Parks), within which development may be consented in exceptional circumstances, though visibility from a site may not be a sole reason for consent no to be granted . More generally, the NPSs indicate that projects need to be carefully designed taking account of potential impact on the landscape, with the aim of minimising harm and providing reasonable mitigation where possible and appropriate. Linked to this topic is that of the historic environment (e.g. listed buildings, UNESCO world heritage sites, scheduled monuments), where their setting is considered to be relevant to their designation or appreciation[11].

Where developments fall within the visual range of receptors (i.e. resident and transient people) on the coast, or are intervisible from other viewing locations at sea, for instance from recreational or commercial vessels, their character, form, aspect, spatial extent and type of movement all influence how the seascape is experienced. In view of the use of turbines of greater size and in greater number, studies and guidance documents have been produced on

[10] https://www.gov.uk/government/collections/england-coast-path-improving-public-access-to-the-coast
[11] See: https://historicengland.org.uk/images-books/publications/gpa3-setting-of-heritage-assets/, also, “essential setting” and “”significant views” are identified in Wales in relation to registered Historic Parks and Gardens.

the assessment of seascapes in relation to offshore wind farms whose findings may be more widely applicable to other marine energy devices which have surface infrastructure[12].

A1.3.2 Implications for SEA

Activities that may arise from the plan/programme could introduce a number of new, possibly conflicting visual elements to the landscape/seascape of the UK. It will be important at the project level, and in the drafting of further Marine Plans, to account for the degree of change in visual character that this could represent. With the exception of offshore wind, (for which most recent developments are proposed to occur further offshore) most activities such wave and tidal energy are likely to be represented by demonstration phase or small-scale commercial devices or developments in the coming years, with tidal stream energy in particular having a highly limited area of resource which is technically viable in those waters relevant to SEA. The visual impacts of these, particularly due to their small vertical aspect or submerged nature, is likely to be negligible compared to offshore wind, but development specific assessments will be required as, at present, a high number of generic device types have been postulated. The potential for cost-effective deployment of tethered wind turbines may lead to further proposals for wind farms further offshore, reducing coastal impacts. In areas of cross-border intervisibility, transboundary effects are possible.

[12] For example, see White *et al.* (2019) Seascape and visual sensitivity to offshore wind farms in Wales: Strategic assessment and guidance, and White Consultants (2020) Review and Update of Seascape and Visual Buffer study for Offshore Wind farms.

A2.4 Water Environment

Water Environment

International

IMO International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 (MARPOL 73/78)
International Convention on Oil Pollution Preparedness, Response and Co-operation (1990)
Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (1972, as amended) 1996 protocol - revision to convention (2006) and amendments to 1996 protocol
International Convention for the control of ships ballast water and sediments (adopted 2004, entered into force September 2017)
International Convention for the Control and Management of Ships' Ballast Water and Sediments,

Regional

Convention for the Protection of the Marine Environment of the North East Atlantic (the OSPAR Convention 1992)
OSPAR Decision 2000/3 on the use of organic-phase drilling fluids (OPF) and the discharge of OPF-contaminated cuttings
OSPAR Decision 2000/2 on a harmonised mandatory control system for the use and reduction of the discharge of offshore chemicals (as amended by decision 2005/1)
OSPAR Recommendation 2001/1 for the Management of Produced Water from Offshore Installations as amended by Recommendations 2006/4, 2011/8 and, 2020/02
OSPAR Recommendation 2003/1 on the Strategy for the Joint Assessment and Monitoring Programme
OSPAR Recommendation 2005/2 on Environmental Goals for the Discharge by the Offshore Industry of Chemicals that are, or Contain Added Substances, Listed in the OSPAR 2004 List of Chemicals for Priority Action
OSPAR Recommendation 2006/3 on Environmental Goals for the Discharge by the Offshore Industry of Chemicals that are, or which Contain Substances Identified as Candidates for Substitution (as amended by Recommendation 2019/02
OSPAR Decision 2007/1 to Prohibit the Storage of Carbon Dioxide Streams in the Water Column or on the Sea-bed
OSPAR Decision 2007/2 on the Storage of Carbon Dioxide Streams in Geological Formations
OSPAR Recommendation 2012/5 for a risk-based approach to the Management of Produced Water Discharges from Offshore Installations as amended by Recommendation 2020/03
OSPAR Recommendation 2010/3 on a Harmonised Offshore Chemical Notification Format (HOCNF), as amended by Recommendation 2014/17, Recommendation 2019/3 and 2021/08.
OSPAR North-East Atlantic Environment Strategy
OSPAR Co-ordinated Environmental Monitoring Programme (ongoing)
OSPAR Quality Status Reports (QSRs) of the North Atlantic and its sub-regions (2000 & 2010)
OSPAR Recommendation 2017/1 on a harmonised pre-screening scheme for offshore chemicals as amended by Recommendation 2019/4, and guidance on the toxicity of substances used and discharged under the scheme in Agreement 2021/07
OSPAR Intermediate Assessment 2017
OSPAR Agreement 2021/01 North East Atlantic Environment Strategy 2030
MoU between the IMO and OSPAR on the promotion of the London Convention and London Protocol
Agreement 2021-04 Memorandum of Understanding (MoU) between the OSPAR Commission for the Protection of the Marine Environment of the North-East Atlantic and the Bonn Agreement Contracting Parties

UK

Water Resources Act 1991 (as amended)
The Offshore Chemicals Regulations 2002 (as amended)
UK Marine and Coastal Access Act 2009 (as amended)
The Marine Strategy Regulations 2010 (as amended)
The Merchant Shipping (Oil Pollution Preparedness, Response and Co-operation Convention) Regulations 1998
Environment Act 2021
Marine Policy Statement (2011)
River Basin Management Plans for respective administrations, including those which are cross-border
Our Seas – a shared resource. High level marine objectives (2009)
Marine Strategy Part 1: Updated Assessment and Good Environmental Status (2019)
Marine Strategy Part 2: UK Marine Monitoring Programmes (2021)
Marine Strategy Part 3: UK Programme of Measures (2015) and consultation (2021)
UK Climate Change Risk Assessment (2017), and the third Climate Change Risk Assessment (due 2022)
National contingency plan for marine pollution from shipping and offshore installations (2017)
A new Chemicals Strategy (as noted in the 25 Year Environment Plan)
UK REACH (2020) - maintains the EU REACH's aims and principles, made by amendment under the *The REACH etc. (Amendment etc.) (EU Exit) Regulations 2020* (as amended)

Local

The Flood Risk Regulations 2009 (as amended) - England and Wales
Flood and Water Management Act 2010 (as amended) - England and Wales
The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (as amended)
Environmental Damage (Prevention and Remediation) Regulations 2015 (as amended) - England
Flooding in England: A National Assessment of Flood Risk (2009)
National flood and coastal erosion risk management strategy for England (2020)
National Policy Statements for Energy (2011): - England and Wales - subject to consultation (2021)
Overarching National Policy Statement for Energy (EN-1)
National Policy Statement for Renewable Energy Infrastructure (EN-3)
National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)
National Policy Statement for Ports (2012) - England
Inshore and Offshore Marine Plans - England
Marine Pollution Contingency Plan (2020) - England and Wales
A Green Future: Our 25 Year Plan to Improve the Environment (2018)
Shoreline Management Plans - England and Wales

The Environmental Damage (Prevention and Remediation) (Wales) Regulations 2009 (as amended)
Technical Advice Note 15: Development and Flood Risk (2004, updated advice maps 2015 and consultation 2019) - Wales
Technical Advice Note 15 guidance on climate change allowances for planning purposes (2016) and technical evaluation of the advice note (2017)
National Strategy for Flood and Coastal Erosion Risk Management (2020) - Wales
Welsh National Marine Plan (2020)
Planning Policy Wales, Edition 11 (2020)
State of Wales' Natural Resources report (2020)
The Natural Resources Policy Statement (2017) - Wales

Water Environment and Water Services (Scotland) Act 2003 (as amended)
Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended)
Flood Risk Management (Scotland) Act 2009 (as amended)
The Environmental Liability (Scotland) Regulations 2009 (as amended)
Marine (Scotland) Act 2010 (as amended)
Flood Risk Management Strategies - Scotland (2015) Due to be updated for 2022.
Delivering sustainable flood risk management: guidance (2019)
Scottish Planning Policy (2014) and the National Planning Framework for Scotland 3 (2014), position statement for NPPF 4 (2020) and consultation of the draft framework (2021)
Scotland's National Marine Plan (2015)

Local

The Water Environment (Floods Directive) Regulations (Northern Ireland) 2009 (as amended)
The Environmental Liability (Prevention and Remediation) Regulations (Northern Ireland) 2009 (as amended)
Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017 (as amended)
Marine Act (Northern Ireland) 2013 (as amended)
An Integrated Coastal Zone Strategy for Northern Ireland 2006-2026 (2006)
PPS 15 Planning and Flood Risk (2014) - Northern Ireland
The Marine Plan for Northern Ireland (consultation, 2018)

A1.4.1 Key objectives and targets

The International Convention for the Prevention of Pollution from Ships (MARPOL) addresses pollution from ships and in part from offshore installations arising from oil, noxious liquids carried in bulk, harmful substances in packaged form, sewage and garbage (Annexes I-V) and in subsequent amendments. MARPOL covers pollution events arising from both operational and accidental causes.

At a regional level, the OSPAR Convention for the protection of the marine environment of the North East Atlantic has the aim of preventing pollution and to protect the marine environment from detrimental effects of human activity. The OSPAR Convention defines pollution as the introduction by man, directly or indirectly, of substances or energy into the maritime area which results, or is likely to result, in hazards to human health, harm to living resources and marine ecosystems, damage to amenities or interference with other legitimate uses of the sea. The convention requires the parties (which includes the UK) to adopt the precautionary principle and the polluter pays principle to meet their obligations. In 1998 Annex V was adopted, specifically aimed at biodiversity and ecosystem protection. The North-East Atlantic Environment Strategy (NEAES) 2030 was adopted on 1st October 2021. The strategy implements the OSPAR Convention until 2030 and sets out the collective objectives[13] of Contracting Parties that will tackle issues of biodiversity loss, pollution (including litter) and climate change. The strategy is put into effect by an implementation plan[14] that contains specific tasks and deadlines against the objectives of the strategy.

The culmination of a number of information gathering and assessment initiatives are presented in the OSPAR Quality Status Reports (QSR) (2001, 2010), which were updated in the Intermediate Assessment (2017) with the next QSR planned for 2023. The assessment reports provide significant information on the current state of the UK and neighbouring seas, and the activities which affect them. Key aspects of the QSR cover biodiversity, eutrophication, hazardous substances, offshore oil and gas industry, radioactive substances and other human activities. At a national level, Charting Progress 2, was a Defra initiative published in July 2010 which provided an updated assessment of the state of UK seas since Charting Progress was first published in 2005. Supporting technical reports on healthy and biologically diverse seas, ocean processes, clean and safe seas, and productive seas provide relevant information on the UK's water environment baseline and issues affecting the water environment, and provided the basis of Marine Strategy Part 1: UK Initial Assessment and

[13] See: https://www.ospar.org/site/assets/files/1200/north-east_atlantic_environement_strategy_compiled.pdf
[14] https://www.ospar.org/convention/strategy/implementation-plan

Good Environmental Status (2012). This was updated in 2019 as part of the UK's Updated Assessment and Good Environmental Status[15].

A number of European level directives have been implemented nationally which aim to protect the terrestrial and marine environments, and these include the Urban Wastewater Treatment Directive, the Nitrates Directive, the Water Framework Directive (WFD) and Marine Strategy Framework Directive (MSFD). These have been transposed in the UK through a number of Regulations including: The *Urban Waste Water Treatment (England and Wales) Regulations 1994*, the *Nitrate Pollution Prevention Regulations 2015, the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017* (and those of other devolved administrations) and the *Marine Strategy Regulations 2010*; these are part of retained EU law and have been amended so that they remain applicable following the UK's exit from the EU.

The *Water Environment (Water Framework Directive) (England and Wales) Regulations 2017* implement the intention to achieve good ecological and chemical status/potential for a range of terrestrial, transitional (i.e. estuarine) and coastal waters out to 1nm (or 3nm under the Scottish Regulations). As much marine pollution is generated from terrestrial activities, the control of certain substances entering coastal waters from riverine sources and other direct discharges is important in the control of marine pollution. The Nitrate Pollution Prevention Regulations and Urban Waste Water Treatment Regulations seek to protect the environment from the adverse effects of nitrogen from agricultural sources and sewage discharges respectively in this regard.

The *Marine Strategy Regulations 2010* require the development of the five elements of the marine strategy: (1) the assessment of marine waters; (2) the determination of the characteristics of good environmental status for those waters; (3) the establishment of environmental targets and indicators; (4) the establishment of a monitoring programme; (5) the publication of a programme of measures. Qualitative descriptors for determining good environmental status are listed in Annex I of the MSFD, and those of relevance to the water environment include:

- Human-induced eutrophication is minimised, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algae blooms and oxygen deficiency in bottom waters.
- Permanent alteration of hydrographical conditions does not adversely affect marine ecosystems.
- Concentrations of contaminants are at levels not giving rise to pollution effects.
- Properties and quantities of marine litter do not cause harm to the coastal and marine environment.
- Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment.

UK "retained EU law" includes Regulations implementing Directive 2004/35/EC on environmental liability (and amendments through 2006/21/EC, 2009/31/EC and 2013/30/EU) with regard to the prevention and remedying of environmental damage (primarily transposed through the *Environmental Damage (Prevention and Remediation) Regulations 2015* –

[15] https://www.gov.uk/government/publications/marine-strategy-part-one-uk-updated-assessment-and-good-environmental-status

separate Regulations apply in the devolved administrations). The Directive, based on the polluter pays principle, establishes a framework to prevent and remedy environmental damage at a reasonable cost to society. The Directive applies strict liability to those operators of inherently hazardous activities listed in Annex III of the Directive which includes those subject to Integrated Pollution Prevention and Control (IPPC), and fault based liability for other activities. The implementing Regulations, as noted above, also implement amendments to the Environmental Liability Directive resulting from Directive 2013/30/EU (the offshore safety Directive), which is more broadly implemented through the *Offshore Installations (Offshore Safety Directive) (Safety Case etc.) Regulations 2015*.

The Marine Policy Statement (MPS) underpins UK marine spatial planning which is being implemented under the *Marine and Coastal Access Act 2009*. The first regional marine plans for English waters were adopted in 2014 (East Inshore and Offshore) and 2018 (South Inshore and Offshore), followed by all the remaining plans in 2021. National marine plans of the devolved administrations have either been adopted (Scotland, 2015 and Wales, 2019) or are in preparation (Northern Ireland). These plan policies, though regionally specific, are to be consistent with national scale policy included in the MPS. With regards to water environment, the MPS indicates that marine plan authorities (e.g. the MMO, Scottish Ministers, Welsh Ministers) must contribute to or align with delivery of the policies and objectives of relevant River Basin Management Plans (RBMP) and the MSFD.

Climate change is likely to have a pervasive effect on all aspects of the coastal and marine environment including flooding, coastal erosion, water quality and resources. Output from the UK Climate Impacts Programme (UKCIP) reflects both past conditions derived from historical record and projections of future climate change across a range of terrestrial and marine variables, allowing for a measure of the uncertainty in future climate projections. The latest output (UKCP18) has significantly enhanced its consideration of marine parameters from previous assessments, including of future sea-level rise, storm surge and wave climate, which complement the ongoing work of the MCCIP in summarising current understanding and potential future changes to the marine environment.

The IPCC published the Special Report on the Ocean and Cryosphere in a Changing Climate (2019), followed by the Working Group I (2021) and Working Group II (2022) reports as part of its Sixth Assessment reporting cycle (AR6).

A1.4.2 Implications for SEA

The SEA considers the above international and national scale measures to reduce operational and accidental discharges at sea and from the terrestrial environment in relation to the possible impacts of the plan/programme (e.g. operational and accidental discharges from oil and gas exploration and production and transportation and storage of carbon dioxide). The SEA considers any potential to affect the attainment of good environmental status under the Marine Strategy Regulations through, for instance, altering hydrographical conditions (e.g. wave, tidal stream and range devices) and also introducing significant levels of noise (e.g. seismic survey and pile driving). The SEA has reflected the most recent monitoring and progress reports (e.g. OSPAR QSR 2010, Intermediate Assessment 2017) in its baseline compilation and assessment.

A2.5 Air Quality

Air Quality

International

Marine Pollution Convention, MARPOL 73/78 (the International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978)
MARPOL Annex VI framework to enhance the energy efficiency of ships (2011)
Geneva Convention on Long Range Transboundary Air Pollution (1979)
Vienna Convention for the protection of the ozone layer (1985)
Montreal Protocol on substances that deplete the ozone layer (1987) and subsequent updates and adjustments, including the Kigali Amendment (2019)
Stockholm Convention on Persistent Organic Pollutants (2001)
UNEP Global Mercury Partnership and Minamata Convention on Mercury (2017)
Consolidated text of the amended Protocol (the Gothenburg Protocol) to Abate Acidification, Eutrophication and Ground-level Ozone (2012)
Initial IMO strategy on the reduction of GHG emissions from ships (2018)

Regional

The Convention for the Protection of the Marine Environment of the North East Atlantic (OSPAR) 1998

UK

Clean Air Act 1993
Environment Act 1995
Pollution Prevention and Control Act 1999
The Offshore Combustion Installations (Pollution Prevention and Control) Regulations 2013 (as amended)
The Merchant Shipping (Prevention of air pollution from ships) Regulations 2008
The Fluorinated Greenhouse Gas Regulations 2015 (as amended)
Greenhouse Gas Emissions Trading Scheme Regulations 2012 (as amended)
The National Emission Ceilings Regulations 2018 (as amended)
The Greenhouse Gas Emissions Trading Scheme Order 2020 (as amended)
Environment Act 2021
UK National Air Pollution Control Programme (2019)
Air quality plan for nitrogen dioxide (NO_2) (2019)

Local

Air Quality (England) Regulations 2000 (as amended)
Air Quality Standards Regulations 2010 (as amended) - England
Pollution Prevention and Control (Designation of Directives) (England and Wales) Order 2013
Clean Air Strategy - England (2019)
The Environmental Damage (Prevention and Remediation) (England) Regulations 2015 (as amended)
The Environmental Permitting (England and Wales) Regulations 2016 (as amended)
A Green Future: Our 25 Year Plan to Improve the Environment (2018)

The Air Quality Standards (Wales) Regulations 2010
The Environmental Damage (Prevention and Remediation) (Wales) Regulations 2009
Well-being of Future Generations (Wales) Act 2015
State of Wales' Natural Resources report (2016)
Draft Clean Air Plan for Wales (2019)

Air Quality (Scotland) Regulations 2000
The Air Quality Standards (Scotland) Regulations 2010
The Environmental Liability (Scotland) Regulations 2009
Pollution Prevention and Control (Designation of Industrial Emissions Directive) (Scotland) Order 2011
Cleaner air for Scotland 2: Towards a Better Place for Everyone (2021)

Local

The Air Quality Standards Regulations (Northern Ireland) 2010
Environment (Northern Ireland) Order 2002
The Large Combustion Plants Regulations (Northern Ireland) 2003
A Clean Air Strategy for Northern Ireland – Public Discussion Document (consultation 2021)

A1.5.1 Key objectives and targets

MARPOL addresses the prevention of marine pollution from ships and in part from offshore installations. It includes six annexes covering pollution by oil, noxious liquids carried in bulk, harmful substances in packaged form, sewage, garbage and air pollution. Most recently, the contribution of shipping to atmospheric global greenhouse gas (GHG) loading has been considered in the IMO's 2018 GHG reduction strategy. Less specific to marine activities, the Convention on Long-Range Transboundary Air Pollution 1979 considers transboundary pollutants including persistent organic pollutants, heavy metals, sulphur, VOCs and nitrogen oxides.

The UK Government's Clean Air Strategy (2019) outlines how the UK and devolved administrations are to tackle issues related to air quality across including those relevant to human health, the environment, clean growth, transport, household and farming emissions. Actions include a new long-term target for the reduction of exposure to PM2.5, a new target for nitrogen deposition, future policies to target air pollution and climate change in the areas of electricity, heat and industry, to work to reduce emissions from non-exhaust particulates and public transport, to prohibit the use of the most polluting fuels for use in the home, targeting the reduction of ammonia emissions from farming and tighter controls on medium industrial combustion plant. The strategy is set in the context of the *Environment Act 2021* and a number of other recent UK Government strategies and plans. Of most direct relevance are the air quality plan for nitrogen dioxide (NO_2), and the UK National Air Pollution Control Programme (2019), but also includes the Industrial Decarbonisation Strategy (2021) and the 25 Year Environment Plan (2018), Aviation 2050 (2018) and Maritime 2050 (2019), all of which in part address emissions to air of pollutants and greenhouse gases. Being set in the context of these other plans recognises the benefits of integrating air quality and climate change policies.

The devolved administrations of Scotland and Wales have their own plans set out in the Cleaner air for Scotland Strategy (2015) and the draft Clean Air Plan for Wales (2019), with Northern Ireland presently developing a clean air strategy.

A1.5.2 Implications for SEA

The plan/programme is set in the wider context of providing both a secure and diverse energy supply, and tackling emissions associated with anthropogenically augmented climate change (see below). Certain activities associated with the plan/programme, including the operation of maintenance and supply vessels and power generation, will contribute to reduction of air quality in some areas. Port expansion, or the increased uptake of available port capacity, may have negative local consequences for air quality in these areas, perhaps contributing to the perpetuation of certain Air Quality Management Areas (AQMAs), which in turn may have health implications. Any offset in energy production from fossil fuel electricity generating stations by the renewable technologies covered by the plan/programme would further contribute to reducing air quality impacts, and in meeting UK targets for the reduction of certain atmospheric emissions.

A2.6 Climate and meteorology

Climate & Meteorology

International

The United Nations Framework Convention on Climate Change
Kyoto Protocol to the UN Framework Convention on Climate Change
The Copenhagen Accord (2009)
Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (2013-2014) and, IPPC Sixth Assessment Reporting Cycle (draft working group I report published 2021, working group II report published 2022)
The Paris Agreement (2015)
The Glasgow Climate Pact (2021)
Initial IMO strategy on the reduction of GHG emissions from ships (2018)

UK

Climate Change Act 2008 (as amended)
The Energy Act 2008 (as amended)
The Energy Act 2013 (as amended)
The Climate Change Act 2008 (2020 Target, Credit Limit and Definitions) Order 2009
The Climate Change Act 2008 (Credit Limit) Order 2016
The Climate Change Act 2008 (2050 Target Amendment) Order 2019
The Carbon Budget Order 2011, 2016 and 2021
Greenhouse Gas Emissions Trading Scheme Regulations 2012 (as amended)
Greenhouse Gas Emissions Trading Scheme Order 2020
The Emissions Performance Standard Regulations 2015
Marine Policy Statement (2011)
UK Climate Impacts Programme (UKCIP) (update 2018, UKCP18)
Marine Climate Change Impacts Partnership (MCCIP), including annual report cards
The National adaptation programme (2018)
Independent Assessment of UK Climate Risk (2021)
Industrial Decarbonisation Strategy (2021)
Energy White Paper: Powering our Net Zero Future (2020)
The Net Zero Strategy: Build Back Greener (2021)
UK Oil & Gas licensing Climate Compatibility Checkpoint (expected 2022)

Local

Inshore and Offshore Marine Plans (East, South, North East, South East, South West, North West) - England
Clean Air Strategy - England (2019)
A Green Future: Our 25 Year Plan to Improve the Environment (2018)

Well-being of Future Generations (Wales) Act 2015
Environment (Wales) Act 2016
The Climate Change (Net Welsh Emissions Account Credit Limit) (Wales) Regulations 2018
Environment Strategy for Wales (2006 - under review)
Energy Wales: a low carbon delivery plan (2019)
State of Wales' Natural Resources report (2016)
Climate Change Strategy for Wales (2010) and Adaptation Delivery Plan (2010)
Welsh National Marine Plan (2019)

The Climate Change (Scotland) Act 2009
Climate Change (Emissions Reduction Targets) (Scotland) Act 2019
The Climate Change (Annual Targets) (Scotland) Order 2010, 2011 and 2016
Climate Ready Scotland: climate change adaptation programme 2019-2024 (2019)
Climate Change Plan: third report on proposals and policies 2018-2032 (2018) - Scotland
The future of energy in Scotland: Scottish energy strategy (2017)
Securing a Green Recovery on a Path to Net Zero: Climate Change Plan 2018–2032 - update (2020)
Offshore wind policy statement (2020) - Scotland
Scotland's National Marine Plan (2015)
Energy strategy: position statement (2021) - Scotland

Local

The Northern Ireland Climate Change Adaptation Programme (2019)
Proposals for taking forward NI climate change legislation - discussion paper (2016)
The Marine Plan for Northern Ireland (consultation, 2018)
Northern Ireland's second Climate Change Adaptation Programme (NICCAP2) (2019)
Climate Northern Ireland Work Programme 2021–2023 (2021)

A1.6.1 Key objectives and targets

The United Nations Framework Convention on Climate Change (UNFCCC) entered into force in 1994, a precursor to the Kyoto Protocol which set legally binding targets for the reduction of greenhouse gases which are associated with anthropogenically induced climate change. The Kyoto Protocol was succeeded by the Paris Agreement which was adopted by parties to the UNFCCC in December 2015 and came into force in 2016. The agreement aims to hold the increase in global average temperatures well below 2˚C above pre-industrial levels, and to pursue efforts to limit this to 1.5˚C (Article 2). A high-level overview of the main provisions of the Agreement are set out below:

- An aim to reach global peaking of greenhouse gas emissions as soon as possible, to undertake rapid reductions thereafter in accordance with best available science, and to achieve a balance between emissions and removals by sinks in the second half of this century.
- To communicate and maintain successive nationally determined contributions which reflect its highest possible ambition. A nationally determined contribution shall be communicated every 5 years, with the first considered on a common timeframe, and also report on these
- The lead should be taken by developed countries by undertaking economy-wide absolute emission reduction targets, with developing country should continuing to enhance their mitigation efforts, moving in time to economy-wide emission reduction or limitation.
- All Parties should strive to formulate and communicate long-term low greenhouse gas emission development strategies in line with their common but differentiated responsibilities and capabilities.
- Parties should take action to conserve and enhance, as appropriate, sinks and reservoirs of greenhouse gases as referred to in Article 4, paragraph 1(d), of the Convention, including forests[16].
- Establish the global goal on adaptation of enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, with a view to contributing to sustainable development and ensuring an adequate adaptation response in the context of the temperature goal referred to in Article 2.

[16] sinks and reservoirs of all greenhouse gases not controlled by the Montreal Protocol, including biomass, forests and oceans as well as other terrestrial, coastal and marine ecosystems.

- Recognize that adaptation is a global challenge, that the need for adaptation is significant and that greater levels of mitigation can reduce the need for additional adaptation efforts.
- Strengthen cooperation on enhancing action on adaptation, and engage in adaptation planning processes and the implementation of actions, including the development or enhancement of relevant plans, policies and/or contributions.
- Recognize the importance of averting, minimizing and addressing loss and damage associated with the adverse effects of climate change, including extreme weather events and slow onset events, and the role of sustainable development in reducing the risk of loss and damage, with the meeting of the Parties to the Paris Agreement being through the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts.
- Developed country Parties shall provide financial resources to assist developing country Parties with respect to both mitigation and adaptation in continuation of their existing obligations under the Convention.
- Parties share a long-term vision on the importance of fully realizing technology development and transfer in order to improve resilience to climate change and to reduce greenhouse gas emissions, served under the Technology Mechanism of the Convention
- Capacity-building under this Agreement should enhance the capacity and ability of developing country Parties, in particular countries with the least capacity, and those that are particularly vulnerable to the adverse effects of climate change.
- Parties shall cooperate in taking measures, as appropriate, to enhance climate change education, training, public awareness, public participation and public access to information.
- Establish an enhanced transparency framework for action and support, with built-in flexibility which takes into account Parties' different capacities and builds upon collective experience.
- A "global stocktake" will periodically review the implementation of the Agreement to assess the collective progress towards achieving its purpose, the first taking place in 2023 and every 5 years thereafter.

The Glasgow Pact was agreed at the Conference of the Parties (COP) 26. Taking account of those ambitions announced at the conference for 2030 and towards net zero, the CCC note an expected warming of just under 2°C may be achieved, however, current climate policies place the expected temperature rise at 2.7°C. They also note that while the Net Zero Strategy does provide a comprehensive plan for the UK to decarbonise at a national level (see below), policies on adaptation need to be stronger, and the UK must continue to have a strong International role during their COP presidency.

The *Climate Change Act 2008* makes provisions for the reduction of carbon dioxide equivalent emissions (i.e. includes other notable direct greenhouse gases including CH_4 and N_2O) through a number of measures, including the setting of a "carbon budget". The UK Government is committed to the reduction of greenhouse gas emissions to "net zero" on 1990 levels by 2050, with interim targets of 34% by 2020, 50% by 2025, and 57% by 2032. The Act

aims to meet this target through a range of measures, but principally through the establishment and work of the Committee on Climate Change (CCC, now the Climate Change Committee), a system of carbon budgeting and trading, activities that reduce or remove greenhouse gases from the atmosphere and promotion through financial incentive, the production of less waste and more recycling. Subsequent Climate Change Act Orders outline carbon budgets for defined time periods, with the most recent (sixth) carbon budget (*The Carbon Budget Order 2020*), containing a target of 78% reduction in emissions on 1990 levels by 2035. Similarly, in Scotland the *Climate Change (Scotland) Act 2009* sets an interim 56% reduction target for greenhouse gases by 2020, increasing to net zero by 2045 on 1990 levels[17]. Scottish ministers have set annual targets through secondary legislation, presently covering the period from 2010-2027.

In response to the IPCC Special Report on Global Warming of 1.5°C, amongst other evidence, the CCC provided advice to Government setting out that in order to meet its obligations under the Paris Agreement, that the UK should pursue a "net zero" target for greenhouse emissions by 2050. This commitment was split between UK constituent countries on the basis of their individual circumstances, with Scotland set to achieve net zero by 2045, Wales set to achieve a 95% reduction by 2050, and England, net zero by 2050. While the carbon budgets for subsequent periods are yet to be set, the *Climate Change Act 2008 (2050 Target Amendment) Order 2019* commits the UK to achieving the net zero target on 1990 levels by 2050 and the UK's Nationally Determined Contribution under the Paris Agreement commits the UK to reducing economy-wide greenhouse gas emissions by at least 68% by 2030, compared to 1990 levels[18].

The Government's Net Zero Strategy: Build Back Greener, was published in October 2021 in response to the setting of the sixth Carbon Budget, pursuant to Section 14 of the *Climate Change Act 2008*. The strategy sets out policies in response to accepting the sixth carbon budget as recommended by the CCC, Nationally Determined Contributions under the Paris Agreement, and a vision towards net zero being achieved by 2050. An evaluation of the Net Zero Strategy by the CCC indicated that it is comprehensive and represents a significant step forward in UK climate policy which is achievable though will require quick implementation to be a success. The CCC indicate that the commitments of the Strategy match those of the Sixth Carbon Budget's Balanced Pathway to Net Zero scenario for the period 2025-2035, including targets for offshore wind, low-carbon hydrogen, and carbon capture and storage. This includes that funding mechanisms are apparently set at levels required to achieve a balanced mix of solutions across these and other sectors. The CCC Pathway and the Net Zero Strategy also differ on emissions (in the order of 5-6MtCO_2e) associated with the fuel supply sector. This mainly reflects the difference between the Pathway and the emissions reductions targets in the North Sea Transition Deal. While the commitments are consistent with a pathway towards meeting the sixth carbon budget, the CCC note that the effect of each policy on emissions has not been quantified.

A number of initiatives have stemmed from these reduction targets and other provisions of the Climate Change Act, for instance the establishment of a National Adaptation Programme based on the Climate Change Risk Assessment, which forms part of Defra's Adapting to Climate Change in England programme.

[17] As amended by the *Climate Change (Emissions Reduction Targets) (Scotland) Act 2019*
[18] https://www.gov.uk/government/publications/the-uks-nationally-determined-contribution-communication-to-the-unfccc

The Energy White Paper: Powering our Net Zero Future, sets out the contribution that the energy sector will make to the net zero target, which includes commitments to support up to 40GW of offshore wind including 1GW of floating wind by 2030, a doubling of the capacity in the 2021 CfD auction (see below) and investment in portside infrastructure, and the creation of a UK emissions trading scheme. The White Paper also refers to the need to decarbonise upstream oil and gas production, the elimination of routine operational flaring by 2030 under the World Bank's 'Zero Routine Flaring by 2030' initiative and the revised OGA Strategy (see Section 2.2 of the Environmental Report). The report also noted the review which was undertaken into the future of oil and gas licensing, following which, it was indicated that future licensing would need to pass a climate compatibility checkpoint. The CCC commented on the climate compatibility of new UK oil and gas fields in February 2022 as part of the consultation on the checkpoint. They indicated that, in relation the impacts on greenhouse gas emissions from further licensing, they could not establish the net impact on emissions as it has a relatively low carbon footprint and the UK will continue to be a net importer for the foreseeable future, suggesting some advantage from domestic production, but acknowledging that this would support a wider global market. The CCC supported tighter production limits, stringent tests and presumption against exploration to send a signal to investors and consumers that the UK is committed to the 1.5°C goal. They did acknowledge that energy security is an important consideration that was beyond the remit of the committee.

Scotland's Offshore Wind Policy Statement[19] indicated that as much as 11GW of offshore wind capacity was possible in Scottish waters by 2030. Scotland's Energy strategy position statement was published in March 2021 which set out key priorities, including those covered by the Offshore Wind Policy Statement in relation to renewables, to press the UK Government for further action to reform and maintain the CfD mechanism in a way that captures the economic benefits and value added for Scottish supply chains, and to continue to support marine energy through the internationally recognised Wave Energy Scotland programme and leadership of the Scottish Marine Energy Industry Working Group[20]. Scotland's Energy Strategy Update is due to be published in due course.

In the UK, the deployment of renewable energy has been incentivised through the Renewables Obligation since 2002 (see the *Renewables Obligation Order 2009*, as amended), whereby renewable electricity generators sell their Renewables Obligation Certificates (ROCs) to suppliers which guarantees a premium above wholesale market prices. Suppliers then present their ROCs to Ofgem to show their compliance (i.e. whether they have met their annual obligation), and pay a penalty if they fail to do so. The value of each ROC is decided between the generator and supplier. Under the UK Government's Electricity Market Reform the RO has transitioned to "Contracts for Difference" (CfDs). CfDs are offered to operators at a fixed price, protecting the operator from volatile market prices, with the operator paying back any difference between the value of the CfD and wholesale electricity prices for electricity, effectively capping the cost of electricity to the consumer from these sources.

Shipping emissions are becoming a greater concern both in relation to the environmental and health implications they pose, but also their contribution to climate change. The Marine Environment Protection Committee of the International Maritime Organization (IMO) agreed amendments to the Annex VI regulations of MARPOL to further reduce harmful emissions from ships, comprising a progressive reduction in sulphur oxide (SOx) emissions. Progressive

[19] https://www.gov.scot/publications/offshore-wind-policy-statement/
[20] See: Securing a Green Recovery on a Path to Net Zero: Climate Change Plan 2018–2032 – update: https://www.gov.scot/publications/securing-green-recovery-path-net-zero-update-climate-change-plan-20182032/ and https://www.gov.scot/publications/scotlands-energy-strategy-position-statement/

reductions in nitrogen oxide (NOx) emissions were also agreed, with the most stringent controls being placed on those engines installed on ships constructed on or after 1st January 2016. From 1st January 2015 ships operating in the North Sea and English Channel needed to use fuel not exceeding 0.1% sulphur, and 0.5% sulphur from 1st January 2020 outside of these areas.

Shipping is presently the source of approximately 2.89% (~1,076Mt) of global carbon dioxide equivalent emissions (Fourth IMO GHG Study 2014). Though these were excluded from reduction targets in the Kyoto Protocol, the IMO is progressing measures to reduce them, and the Initial IMO Strategy on reduction of GHG emissions from ships was adopted in April 2018. The strategy identifies that the following is needed to reduce emissions from shipping; that the carbon intensity of ships decline through implementation of further phases of the energy efficiency design index (EEDI) for new ships, that the carbon intensity of international shipping declines by at least 40% by 2030, pursuing efforts towards 70% by 2050, relative to 2008, and that greenhouse gas emissions from international shipping peak and decline as soon as possible by at least 50% by 2050 whilst pursuing efforts towards phasing them out completely consistent with the Paris Agreement goals.

Similarly, at the national level, international shipping (and aviation) emissions were not specified within the 2050 Climate Change Act target, but have since been included (along with international aviation) in *The Carbon Budget Order 2021*[21]. The CCC's advice to Government is that it should aim for net zero in the sector by 2050, which will likely require some form of greenhouse gas removal, amongst other means of reducing emissions such as alternative fuels. Following the publication of Maritime 2050 (2019), the Clean Maritime Plan sets out in more detail how the UK Government plans to transition the industry towards net zero by 2050.

At an international level, the IPCC provide information and evidence for climate change, its impacts, and how mitigation and adaptation might help alleviate its worst effects. The IPCC has published two reports as part of the Assessment Report (AR6); the Working Group I paper on the Physical Science Basis was in 2021, and the Working Group II paper on Impacts, Adaptation and Vulnerability was published in February 2022. In the UK, UKCP18 provides medium- to long-term projections (to 2100) for climate change specific to the UK and UK marine area. The MCCIP has close ties with the UKCP programme, and these programmes help to provide climate change evidence and advice which may be used to inform policy and decision-makers.

A1.6.2 Implications for SEA

The plan/programme is strongly associated with a number of key climate change related targets outlined above, including in relation to renewables deployment and emissions reductions. The SEA can acknowledge and consider the potential contribution of the plan/programme to these targets, but also that the aspects of energy production and supply covered are part of a wider UK energy mix (e.g. including onshore renewables, new nuclear and gas/coal fired generation), for which policy directions are presently under review.

[21] See the explanatory memorandum to the 2021 Order: https://www.legislation.gov.uk/uksi/2021/750/memorandum/contents

A2.7 Population and human health

Population & Human Health

International

World Summit on Sustainable Development, Johannesburg, 2002
Aarhus Convention (Convention on Access to Information, Public Participation in Decision Making and Access to Justice in Environmental Matters) (1998)
Espoo Convention on Environmental impact Assessment in a Transboundary Context (1991)
Commission on Social Determinants of Health (2008), 'Closing the gap in a generation: health equity through action on the social determinants of health and the Rio Political Declaration on Social Determinants of Health (2011)
UN's Sustainable Development Goals (2015)

Regional

Children's Environment and Health Action Plan for Europe 2004

UK

Sustainable Communities Act 2007 (as amended)
The Localism Act 2011 (as amended)
The Health and Safety at Work etc Act 1974 (as amended) and *The Health and Safety at Work etc. Act 1974 (Application outside Great Britain) Order 1995* (as amended)
The Offshore Installations (Offshore Safety Directive) (Safety Case etc.) Regulations 2015 (as amended)
The Offshore Petroleum Licensing (Offshore Safety Directive) Regulations 2015 (as amended)
Marine Policy Statement (2011)
Our Seas – a shared resource. High level marine objectives (2009)

Local

Health and Social Care Act 2012 (as amended) - England
National Planning Policy Framework (2021) - England
Inshore and Offshore Marine Plans - England
Clean Air Strategy - England (2019)
A Green Future: Our 25 Year Plan to Improve the Environment (2018)

National Health Service (Wales) Act 2006 (as amended)
Social Services and Well-being (Wales) Act 2014
Well-being of Future Generations (Wales) Act 2015
Planning (Wales) Act 2015
The Environment (Wales) Act 2016
The Wales Act 2017
Technical Advice Note 16: Sport, Recreation and Open Space (2009) - Wales
Prosperity for All: the national strategy (2017)
Future Wales. The National Plan 2040 (2021)

Public Health etc. (Scotland) Act 2008 (as amended)
Public Services Reform (Scotland) Act 2010 (as amended)
Scotland and the sustainable development goals: a national review to drive action (2020)
Scotland's Economic Action Plan 2019-20 (2019)
Scottish Planning Policy (2014) and the National Planning Framework for Scotland 3 (2014), position statement for NPPF 4 (2020) and consultation of the draft framework (2021)
Scotland's National Marine Plan (2015)

Health and Social Care (Reform) Act (Northern Ireland) 2009 (as amended)
PPS 8: Open Space, Sport and Outdoor Recreation (2004) - Northern Ireland
Making Life Better: Strategic Framework for Public Health 2013-2023 (2015) - Northern Ireland

A1.7.1 Key objectives and targets

At the UK and UK constituent country level, health is considered in the context of sustainable development and initiatives attempt to address health inequalities, for instance the gap in infant mortality across social groups, and the difference in life expectancy in disadvantaged areas compared with those that are more prosperous. Health is a cross-cutting issue, such that the condition of the water environment (Section 4.4), air quality (Section 4.5) and the potential worst effects of climate change (Section 4.6), all have direct or indirect health implications for which numerous initiatives have been implemented. Additionally, initiatives relating to the economic factors covered in Section 4.8 are also relevant, as are the wellbeing benefits associated with the natural environment (Section 4.1), landscape/seascape (Section 4.3) and cultural heritage (Section 4.9).

At the national and regional planning policy level, human health is a sectoral consideration in the MPS, for instance in relation to fisheries, aquaculture and safe operation of offshore facilities, and the improvement of health and social well-being is an objective of the English Marine Plans adopted to date, with specific policies in support of proposals which provide such benefits. This is similarly acknowledged in the Welsh National Marine Plan and Scotland's National Marine Plan.

A1.7.2 Implications for SEA

The SEA considers the implications of the plan/programme in the context of regional and UK initiatives designed to improve general health and well-being and reduce inequalities brought about by social and environmental deprivation. The SEA considers how the plan/programme contributes to government targets in relation to environmental degradation (e.g. air quality, landscape quality) which has associated potential physical and mental health implications.

A2.8 Other users of the sea (material assets)

Other Users & Material Assets

International

Convention on International Civil Aviation (Chicago Convention) 1944
The London Convention (1972)
Marine Pollution Convention, MARPOL 73/78 (the International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978)
United Nations Convention on the Law of the Sea (1982)
Basel Convention of the control of transboundary movements of hazardous waste and their disposal (1992)
FAO Code of Conduct for Responsible Fisheries (1995)
UN Fish Stocks Agreement (2001)
Nairobi International Convention on the Removal of Wrecks (2007, entered into force 2015)
The Hong Kong Convention for the Safe and Environmentally Sound Recycling of Ships (2009)
Joint Roadmap to accelerate Maritime/Marine Spatial Planning processes worldwide (DG MARE and UNESCO) (2017)

Regional

Convention on the Future Multilateral Cooperation in North-East Atlantic Fisheries (NEAFC) (1980)
Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) (1992)
OSPAR Decision 98/3 on the disposal of disused offshore installations (1998)
OSPAR Recommendation 2016/01 on the reduction of marine litter through the implementation of fishing for litter initiatives
OSPAR Recommendation 2010/3 on a Harmonised Offshore Chemical Notification Format (HOCNF) (amended 2014, 2019 and 2021)
OSPAR Recommendation 2017/1 on a harmonised pre-screening scheme for offshore chemicals (amended 2019) and guidance on the toxicity of substances used and discharged under the scheme in Agreement 2021/07

UK

The Merchant Shipping Act 1995 (as amended)
Merchant Shipping and Maritime Security Act 1997 (as amended)
Sea Fisheries (Shellfish) Act 1967 (as amended)
Sea Fish (Conservation) Act 1967 (as amended)
Fisheries Act 1981 (as amended)
Fisheries Act 2020
Petroleum Act 1998 (as amended)
Energy Act 2008 (as amended)
Energy Act 2016 (as amended)
Marine and Coastal Access Act 2009 (as amended)
The Energy Act 2008 (Consequential Modifications) (Offshore Environmental Protection) Order 2010
Wreck Removal Convention Act 2011
The Exclusive Economic Zone Order 2013
The Territorial Sea (Baselines) Order 2014
The Offshore Installations (Offshore Safety Directive) (Safety Case etc.) Regulations 2015
The Offshore Petroleum Licensing (Offshore Safety Directive) Regulations 2015 (as amended)
Harbours Act 1964
The Renewables Obligation (introduced 2002, closed to new capacity 2017)
Contracts for Difference (2014 to present)
The future relationship between The United Kingdom and The European Union (2018), the Withdrawal Agreement and Political Declaration (2019)
Fisheries white paper: sustainable fisheries for future generations (2018)
UK Ship Recycling Strategy (2007)
Our Seas - A Shared Resource. High Level Marine Objectives (2009)
Round 3 (2009) and Round 4 (2019) offshore wind leasing, 2017 offshore wind extensions, and leasing in the Celtic Sea
Offshore transmission network review (ongoing)
Offshore Wind Evidence and Change Programme

UK

The UK Marine Policy Statement (2011)
The Industrial Strategy - Building a Britain fit for the future (2017)
The Clean Growth Strategy (2018)
Carbon Capture Usage and Storage Deployment Pathway (2018) and the CCUS cluster sequencing
Ten Point Plan for a Green Industrial Revolution (2020)
Energy White Paper (2021)
The Net Zero Strategy (2021)
The Wood Review on maximising economic recovery from the UKCS (2013) and related Government response
The Oil & Gas Authority Strategy (2016, updated 2020)
Seaward Oil and Gas Licensing Rounds
Oil and Gas Authority Decommissioning Strategy (2021)
Aviation 2050 (2018), and also relevant CAA policy

Local

Waste (England and Wales) Regulations 2011 (as amended)
The Scallop Fishing (England) Order 2012
Inshore Fisheries and Conservation Authorities bylaws
National Policy Statements for Energy (2011): - England and Wales (subject to review)
Overarching National Policy Statement for Energy (EN-1)
National Policy Statement for Renewable Energy Infrastructure (EN-3)
National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)
National Policy Statement for Ports (2012) - England and Wales
The National Planning Policy Framework (2021) - England
Waste prevention programme for England (consultation 2021)
Inshore and Offshore Marine Plans - England

Inshore Fishing (Scotland) Act 1984
Sea Fisheries (Shellfish) Act 1967 (as amended)
The Marine (Scotland) Act 2010 (as amended)
The Aquaculture & Fisheries (Scotland) Act 2013 (as amended)
Scottish Marine Regions Order 2015
Aquaculture growth to 2030 (2016) - Scotland
Strategic Framework for Inshore Fisheries in Scotland (2005) and Inshore Fisheries Groups
Future fisheries: management strategy - 2020 to 2030 (2020) - Scotland
National Transport Strategy (2020) - Scotland
Scottish Energy Strategy: The Future of Energy in Scotland (2017) and Scotland's Energy Strategy: Position Statement (2021)
Sectoral marine plan for offshore wind energy (2020) - Scotland
Scotland's Sectoral Marine Plans for Wave and Tidal Energy in Scottish Waters (2013)
Scotland's Marine Tourism Strategy (2020)
Scotland's National Marine Plan (2015) and review (2021)
Shetland Marine Plan (2015)
Clyde Regional Marine Plan (2021, pre-consultation)
Pilot Pentland Firth and Orkney Waters Marine Spatial Plan (2017)

Wales Act 2017 (as amended)
Technical Advice Note 8: Renewable Energy (Wales) - does not cover offshore elements of a development, but makes mention of any associated infrastructure that takes place on land (2005)
Welcome to Wales: priorities for the visitor economy 2020-2025 (2020)
Technical Advice Note 13: Tourism (1997) - Wales
National Development Framework Wales (2020)
The Wales Transport Strategy (2021)
Towards Zero Waste: our waste strategy (2019)
Welsh National Marine Plan (2019)
Marine Energy Programme - Wales
Developing the hydrogen energy sector in Wales (consultation 2021)

Local

Marine Act (Northern Ireland) 2013 (as amended)
The Sea Fishing (Licenses and Notices) Regulations (Northern Ireland) 2014
Industrial Strategy for Northern Ireland (consultation, 2017)
Offshore Renewable Energy Strategic Action Plan 2012-2020 and Offshore Wind and Marine Renewables Energy SEA Environmental Report (2012) - Northern Ireland
Sustainable Energy Action Plan 2012-2015 and beyond (2012) - Northern Ireland
Energy Strategy - Call for Evidence (2019-20) and Northern Ireland Energy Strategy 2050 (due 2021)
Delivering Resource Efficiency: the revised Northern Ireland Waste Management Strategy (2013 and consultation 2019)
Draft Environment Strategy Northern Ireland (consultation 2021)
Marine Plan for Northern Ireland (consultation, 2018)

A1.8.1 Key objectives and targets

The *Marine and Coastal Access Act 2009* (MCAA) is intended to simplify and strengthen strategic management of the marine environment by enabling economic, social and environmental impacts and objectives to be considered simultaneously. A key objective of the Act is to implement a nationwide system of marine planning that will clarify marine objectives and priorities for the future, and direct decision-makers and users towards more efficient, sustainable use and protection of marine resources. The Marine Policy Statement (MPS) made under the Act was jointly adopted in March 2011 by the UK Government, Scottish Government, Welsh Government and the Northern Ireland Executive, and applies to all UK waters. The MPS provides an overarching framework within which regional marine plans are drafted. The Act established the Marine Management Organisation (MMO) with responsibility for marine plan making covering English territorial and offshore waters on behalf of the UK Government. There are 11 marine plan areas within English inshore and English offshore regions and marine plans have been prepared for all of these. In Scotland, Wales and Northern Ireland, plan making is being taken forward by the devolved administrations. The Scottish National Marine Plan was adopted in March 2015 and subsequent regional planning has been proposed for a further 11 inshore areas (with Shetland and Pentland Firth & Orkney Waters plans adopted or ongoing respectively). The Welsh National Marine Plan was adopted in 2019, and the Marine Plan for Northern Ireland is still in preparation.

The marine licensing regime for a number of activities (generally excluding oil & gas, and gas storage) underwent changes resulting from the MCAA. In considering the need for coordination with regard to marine spatial planning, the responsibilities of the devolved administrations also need to be accounted for. The territorial and offshore waters of Scotland, territorial waters of Wales and Northern Ireland are variously the remit of Scottish, Welsh and Northern Irish Ministers respectively. NRW and MMO are the responsible authorities for issuing marine licences for a range of activities in Welsh and English waters respectively. Section 36 consent for marine renewable arrays of <100MW passed from BEIS to MMO under the MCAA, and those for electricity generating stations at or below 350MW in Wales and Welsh Zone, passed to Welsh Ministers under the *Wales Act 2017*. With regards to Nationally Significant Infrastructure Projects (NSIPs), now defined as renewable arrays of >100MW in English waters, and >350MW in Welsh waters, the MMO and NRW are variously the licensing authorities for those provisions under Part 4 of the Marine and Coastal Access Act, while the decision maker with regards to the grant of a Development Consent Order is the Secretary of State. NRW and the MMO have a number of other roles in the consideration of NSIPs relevant to them, including as a statutory consultee, interested party. The Planning Inspectorate (PINS) is the examining authority for NSIPs, and provides advice to the Secretary of State to inform his decision. Advice is still provided by PINS for developments in Wales of less than 350MW, however, this advice is provided to Welsh Ministers rather than the Secretary of State. On

granting a Development Consent Order, the MMO/NRW is then responsible for enforcement[22], post-consent monitoring, and varying, suspending or revoking any marine licence[23], though the Secretary of State/Welsh Ministers ultimately retain responsibility for the review of consents, for example, under the Habitats Regulations.

In addition to the regulatory regime which provides the framework for consenting, planning policy is variously covered by the MPS, NPSs for energy (note that the energy NPSs are currently subject to reviewed), regional marine plans, and a range of terrestrial policy including the NPPF and Planning Policy Wales. In Scotland, Marine Scotland is the relevant authority with marine planning and policy responsibilities, and in Northern Ireland, the NIEA is the licensing and enforcement authority (as part of the Department of Agriculture, Environment and Rural Affairs) for devolved matters.

A significant proportion of renewable energy generation in the next 10 years will come from offshore wind, and potentially other marine renewables, as they are increasingly deployed and become more technically and economically feasible. These will help deliver part of the government targets to reduce carbon dioxide equivalent emissions, as recognised in the Clean Growth Strategy (2017), Industrial Strategy (2017) and the Energy White Paper (2020).

Within the UK, sources of carbon dioxide are clustered around a relatively few centres of significant industrial activity; Thames Estuary, Humberside, Merseyside, the Firth of Forth and Teesside and Tyneside, and it is recognised that Carbon Capture Usage and Storage (CCUS) is likely to be needed to decarbonise heavy industry in these areas. The CCUS Deployment Pathway: An Action Plan, sets out the UK Government's approach to the delivery of CCUS, with cost elements being considered by the CCUS Cost Challenge Taskforce[24]. Support for CCUS has been provided by UK Government, for example, through the CCUS Innovation Programme[25], the Industrial Decarbonisation Deployment and Roadmap administered by UKRI, and funding to support the transition from natural gas to hydrogen[26]. Most recently, BEIS has proposed an Industrial Hydrogen Accelerator competition to support projects over the full technology chain, from hydrogen generation and delivery infrastructure through to industrial end-use[27]. This would be delivered through BEIS's £1 billion Net Zero Innovation Portfolio. Based on the targets given in the 2020 Energy White Paper (two industrial CCUS clusters by the mid-2020s, presently identified to be the East Coast Cluster and HyNet North West with the Scottish cluster as a reserve, and a further two clusters by 2030, with an ambition to capture and store 20-30MtCO_2 per year by 2030) several facilities could become operational during the timescale of OESEA4, with a mixture of asset re-use and new facility installation. While the Energy White Paper refers to 10MtCO_2 by 2030, the Net Zero Strategy indicates the aim is to use CCUS to capture and store 20-30MtCO_2 per year by 2030.

While reliance on fossil fuel sources will continue during the decarbonisation of energy supply industry (including through CCUS), the UK is now a net importer of both oil and gas. Since 2000, UK domestic gas supply has declined with net imports commencing in 2004, and similarly, UK oil production has been in decline since a peak in 1999, with net imports of oil

[22] Note that enforcement functions under Part 4 of the *Marine and Coastal Access Act* were not delegated to NRW and remain with Welsh Ministers, see: http://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2013/04/Advice-note-11-Annex-A-CCW.pdf
[23] https://www.gov.uk/government/collections/marine-licensing-nationally-significant-infrastructure-projects
[24] https://www.gov.uk/guidance/uk-carbon-capture-and-storage-government-funding-and-support
[25] https://www.gov.uk/government/publications/call-for-ccus-innovation
[26] https://www.gov.uk/government/news/pm-commits-350-million-to-fuel-green-recovery
[27] https://www.gov.uk/government/publications/industrial-hydrogen-accelerator-programme

commencing in 2005. In 2019, imports met approximately 48% of the UK's oil and gas demand. Despite these declines, the UK remains a large producer of oil and gas, and successive oil and gas licensing rounds attract significant interest. Reductions in the recent production and exploration of the UKCS sector led to the Wood Review in 2013, which set out a number of recommendations that were accepted by Government, including the creation of the OGA, an executive agency of BEIS formally established in April 2015 and which became a government company wholly owned by the Secretary of State for BEIS in 2016. The OGA has responsibilities including oil and gas licensing, exploration and production, fields, wells and other infrastructure, and CCS licensing, with environmental regulatory functions retained by BEIS, and administered by the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED).

The *Infrastructure Act 2015* amended the *Petroleum Act 1998* (Part 1A), creating an obligation on the Secretary of State to produce a Strategy for enabling the principal objective of "maximising the economic recovery of UK Petroleum" and for this strategy to be produced by April 2016. This resulted in the Maximising Economic Recovery (MER) UK Strategy which set out a central obligation (that relevant persons[28] must take the steps necessary to secure that the maximum value of economically recoverable petroleum is recovered from the strata beneath relevant UK waters) and a number of supporting obligations and actions. The strategy was revised in 2020 (The OGA Strategy) to account for the UK's net zero commitment, such that amendments were made in relation to the central obligation, and a number of supporting obligations, around relevant persons taking appropriate steps to assist the Secretary of State in meeting the net zero target. The OGA has been working on a number of initiatives to assist such a move, including on energy integration[29].

A linked factor in enhancing security of supply is the need for gas storage capacity since, until recently, seasonal fluctuations in UK gas demand were met by varying production rates from UK fields. Gas storage in the UK is comparatively small when compared to Europe, as supply has to date been dominated by domestic supply and an abundance of import infrastructure. Whilst new gas import infrastructure may be constructed, domestic gas supply has been in decline in recent years, which is enhancing import dependency. There are a small number of gas storage facilities in the UK, all of which are located onshore (see Appendix 1h). There are two proposed offshore facilities (Gateway, Deborah), however, it is not clear that these will proceed as no investment decision has been made. Existing facilitates collectively have approximately 1.5 billion cubic metres (Bcm) of storage capacity and a delivery rate of 111 million cubic metres per day (mcm/day)[30]. The latest UK risk assessment of security of gas supply indicates that UKCS gas supply has increased year on year since 2014 due to the development of new fields, increased production, and the extraction of cushion gas at Centrica's Rough storage facility as it prepared for closure. However, the general trend is one of declining domestic production (as noted above). The National Grid Gas Ten Year Statement is published by National Grid annually as System Operator and Transmission Owner of the gas National Transmission System (NTS). The statement sets out how it is planned to operate the NTS over the next 10 years.

Following the accident involving the Deepwater Horizon semi-submersible in the Gulf of Mexico and subsequent problems in both stemming the flow of oil from the open well and

[28] Relevant persons has the meaning of, the OGA and those listed in section 9A(1)(b) of the *Petroleum Act 1998* (as amended). These include, a person who is the holder of a petroleum licence, an operator under a petroleum licence, the owner of a relevant offshore installation or upstream petroleum infrastructure.
[29] https://www.ogauthority.co.uk/the-move-to-net-zero/energy-integration/
[30] https://www.ofgem.gov.uk/publications-and-updates/gb-gas-storage-facilities-2021

adverse environmental and socio-economic impacts, the UK Government has taken various actions to ensure that the UK oil and gas sector operates appropriately (see BEIS guidelines on the demonstration of financial liabilities[31]), and the establishment of an industry trade association (The Oil Spill Prevention and Response Advisory Group) by Oil and Gas UK which assessed and reported on the strengths and weaknesses in how the UK would respond to such an incident in its waters. The EU Directive on safety of offshore oil and gas operations (the offshore safety directive) which seeks to reduce, as far as possible, the occurrence of major accidents related to offshore oil and gas operations was transposed into UK law through secondary legislation (the *Offshore Installations (Offshore Safety Directive) (Safety Case etc.) Regulations 2015*, and the *Offshore Petroleum Licensing (Offshore Safety Directive) Regulations 2015*) and amendments to other Regulations including in relation to environmental liability have been made.

In order to implement the same environmental regulations which apply to the oil and gas industry to the storage and offloading of combustible gas, and the storage of carbon dioxide (i.e. those activities licensed under the *Energy Act 2008*), the *Energy Act (Consequential Modifications) (Offshore Environmental Protection) Order 2010* was made. This instrument ensures that regulations including the *Offshore Petroleum Activities (Conservation of Habitats) Regulations 2001* (as amended) and the *Offshore Chemicals Regulations 2002 (as amended)* apply to these types of development.

The National Policy Statement for Ports was published in 2012, which outlines the framework for decision making in relation to nationally significant port developments in England and Wales, and recognises the strategic role of UK ports in the in movement of goods. Shipping and port activity has expanded considerably in recent years, and will remain the principal means by which the UK exchanges goods. Ships, though emitting less carbon dioxide per tonne of goods transported than other methods of bulk transport, represent a significant source of anthropogenic gaseous and particulate emissions. Regulation of these emissions is partial, and largely undertaken at the IMO level (for example, in regulations made under MARPOL to limit SOx emissions, and the IMO strategy on the reduction of greenhouse gas emissions from ships), however, the UK's clean maritime plan has indicated that new ships should be zero-emissions capable by 2025, with guidance also issued to ports to assist them in developing air quality strategies. The UK Government also proposes to include emissions from international aviation and shipping in future carbon budgets, as at present, these are not counted.

UK fisheries have reduced in recent years in part due to declining fish stocks and resulting management techniques including catch and effort management. The *Marine and Coastal Access Act 2009* aims to strengthen fisheries and environmental management protection. Inshore fisheries management is now handled by Inshore Fisheries and Conservation Authorities (IFCAs), which replaced Sea Fisheries Committees. IFCAs are responsible for activities out to 6nm from the coast and in estuaries where they will be responsible for sea fisheries management. In Scotland, Marine Scotland has a number of roles including marine research, marine policy and regulatory functions. The nature of the future management of fisheries in UK waters is likely to reflect the proposals set out in the White Paper, Sustainable Fisheries for Future Generations[32].

[31] https://www.gov.uk/guidance/oil-and-gas-offshore-environmental-legislation
[32] https://www.gov.uk/government/consultations/fisheries-white-paper-sustainable-fisheries-for-future-generations

A1.8.2 Implications for SEA

The SEA takes into account the interaction of the plan/programme and its alternatives with the present (e.g. safety of navigation, recreation interests including sailing and surfing), and possible future use of the marine environment (e.g. use of areas for hydrocarbon gas and carbon dioxide storage and marine renewables) and the various management and regulatory regimes which control their activities. The SEA also considers how the programme may contribute to government targets such as renewable energy generation, security of energy supply and reductions in greenhouse gases.

A2.9 Cultural heritage

Cultural Heritage

International

UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage (1972)
UNESCO Renewable Energy Transition and World Heritage (due 2021)
Convention on the Protection of Underwater Cultural Heritage (2001)
United Nations Convention on the Law of the Sea (UNCLOS)
World Heritage Convention 1972
Tentative list of possible future world heritage nominations - United Kingdom of Great Britain and Northern Ireland

Regional

Council of Europe, European Convention on the Protection of the Archaeological Heritage 1992, the 'Valetta Convention'
Council of Europe, European Landscape Convention 2000

UK

Protection of Military Remains Act 1986 (as amended)
Ancient Monuments and Archaeological Areas Act 1979 (as amended)
National Heritage Act 2002 (as amended)
Marine and Coastal Access Act 2009 (as amended)
The Protection of Military Remains Act 1986 (Designation of Vessels and Controlled Sites) Order 2019
Marine Policy Statement (2011)
Maritime and Marine Historic Environment Research Framework (2011, updated 2013)

Local

Protection of Wrecks Act 1973 - England, Wales and Northern Ireland
National Heritage Act 1983 (as amended) - England
Treasure Act 1996 - England and Wales
Planning (Listed Buildings and Conservation Areas) Act 1990 - England and Wales
Ancient Monuments and Archaeological Areas Act 1979 (as amended)
Inshore and Offshore Marine Plans - England
National Planning Policy Framework (2021)
Historic England Advice Note 8 - Sustainability Appraisal and Strategic Environmental Assessment (2016)
Marine Aggregate Levy Sustainability Fund (MALSF) Regional Environmental Characterisations including : South Coast, Thames, East Coast and the Humber areas.
Historic England Climate Adaptation Report (2016)
National Historic Seascape Characterisation Consolidation (2018)
Historic Environment Good Practice Advice in Planning Note 3: The Setting of Heritage Assets, 2nd Edition (2017)
Commercial Renewable Energy Development and the Historic Environment (2021)

Historic Environment (Wales) Act 2016 (as amended)
Conservation Principles for the sustainable management of the historic environment in Wales (2011)
A Research Framework for the Archaeology of Wales (2011)
Historic Environment Strategy for Wales (2013)
Planning Policy Wales Edition 11 (2020)
Welsh National Marine Plan (2019)

Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997 (as amended)
Marine (Scotland) Act 2010 (as amended)
The Historic Environment Scotland Act 2014
Scottish Natural Heritage: Natural Heritage Futures (2002, updated 2009)
Scottish Planning Policy (2014) and the National Planning Framework for Scotland 3 (2014), position statement for NPPF 4 (2020) and consultation of the draft framework (2021)
Historic Environment Policy for Scotland (2019)
Heritage for all: corporate plan 2019 onwards - Historic Environment Scotland (2019)
Scotland's National Marine Plan (2015)
Consultation Report: Historic Marine Protected Areas (2019)

Local

The Planning Act 2011 - Northern Ireland
The Planning (Northern Ireland) Order 1991
The Historic Monuments and Archaeological Objects (Northern Ireland) Order 1995
Marine Act (Northern Ireland) 2013
Planning Policy Statement 6: Planning, Archaeology and The Built Heritage (Northern Ireland) (1999) and 2005 addendum (note that this will cease to apply as Local Development Plans are adopted)
Guidance on Setting and the Historic Environment (2018)
The Marine Plan for Northern Ireland (consultation, 2018)
Strategic Planning Policy Statement 2015 - Northern Ireland

A1.9.1 Key objectives and targets

United Nations Convention on the Law of the Sea (UNCLOS), and more recently the Convention on the Protection of Underwater Cultural Heritage (CPUCH), provide a level of protection to underwater heritage at an international level. Though the UK is not a signatory of the latter, the convention received acceptance or ratification of the minimum number of 20 states on 2nd October 2008 and entered into force on 2nd January 2009. The CPUCH covers those archaeological, historical or cultural items which have been, 'partly or completely under water, periodically or continuously, for at least 100 years', which includes not only shipwrecks but buildings, artefacts, human remains, aircraft, cargo and prehistoric items. A central tenet of the Convention is that underwater heritage is preserved *in situ*. While the UK has not ratified CPUCH, the principles of the Convention have been adopted by the UK

At present, the principal form of marine heritage protection in the UK is for that of shipwreck, provided by the *Protection of Wrecks Act 1973*, the *Protection of Military Remains Act 1986* and the *Marine (Scotland) Act 2010*. These seek to protect either wrecks or wreck sites that contribute to the understanding of the past on account of their historical, archaeological or artistic importance, or vessels or aircraft which appear to have become sunk or stranded while in military service.

The *Marine and Coastal Access Act 2009* has a number of provisions in relation to the historic environment, including consideration of historic or archaeological sites within the grounds for designating MCZs. The *Marine (Scotland) Act 2010* allows Scottish Ministers to designate Historic Marine Protected Areas in Scottish territorial waters (i.e. out to 12nm). These designations have been used to cover all wrecks in Scottish waters formerly designated under the *Protection of Wrecks Act 1973*, which is no longer applicable to Scotland. Military wrecks remain within the remit of the *Protection of Military Remains Act 1986* for all UK waters. Additionally, policies within the English regional marine plans, and the national plans of Scotland and Wales, require that proposals demonstrate how harm to heritage assets will be avoided, minimised mitigated or how the public benefits of proceeding with the project outweigh any harm, with projects that enhance historic assets encouraged.

Scottish territorial waters are not within the remit of this SEA other than for reserved matters (gas storage and oil and gas licensing), so any interaction with Historic Marine Protected Areas would be exclusively for these aspects of the draft plan/programme. For the purposes of the *Marine (Scotland) Act 2010* historic assets may include:

- a vessel, vehicle or aircraft (or a part of a vessel, vehicle or aircraft), or it's remains
- an object contained in, or formerly contained in, a vessel, vehicle or aircraft
- a building or other structure (or a part of a building or structure)
- a cave or excavation

- a deposit or artefact (whether or not formerly part of a cargo of a ship) or any other thing which evidences, or groups of things which evidence, previous human activity

Under the reform of heritage protection, the Scottish Government released a policy document in 2008 which consolidated the Scottish Heritage Protection Policy series of reports, followed by the Scottish Historic Environment Policy (SHEP) in 2011. Most recently, the Historic Environment Policy for Scotland (HEPS) was published in 2019 which sets out a number of policies and principles on how Scotland's historic environment should be managed. This includes policies on managing change as the result of decisions that effect the historic environment, or the planning and implementation of plans, programmes, policies and strategies, including that they should approach the historic environment in a way that protects and promoted it.

Historic England has produced its Historic England Corporate Plan 2020-23: Building the future. The plan sets out Historic England's strategic objectives, and the activities, outputs and outcomes to deliver these. A number of outcomes in the plan relate to enhancing knowledge and better informing decision making.

A1.9.2 Implications for SEA

The SEA considers the potential effects of plan/programme activities on coastal and marine heritage features, including on landscape/seascape and setting. A range of guidance and best practice advice has been published in recent years. The concern of interactions between offshore industry (particularly renewables) and the marine archaeological resource has led to the development of a series of guidance documents by Wessex Archaeology in 2007, through COWRIE in 2008 and 2011, and more recently Historic England in 2021.