

Draft Sectoral Marine Plan for Offshore Wind Energy (2019)

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Draft Sectoral Marine Plan for Offshore Wind Energy consultation

This document forms part of the consultation on the draft Sectoral Marine Plan for Offshore Wind Energy. The draft plan is accompanied by many supporting assessments under a Sustainability Appraisal. These documents are all available online at:

<https://consult.gov.scot/marine-scotland/draft-sectoral-marine-plan-for-offshore-wind/>

They can also be found individually at the links below:

Draft Sectoral Marine Plan for Offshore Wind Energy (this document)

<http://www.gov.scot/ISBN/9781839603747>

Strategic Environmental Assessment Environmental Report

<http://www.gov.scot/ISBN/9781839603761>

Social and Economic Impact Assessment

<http://www.gov.scot/ISBN/9781839603792>

Strategic Habitat Regulations Appraisal (HRA): Screening and Appropriate Assessment Information Report

<http://www.gov.scot/ISBN/9781839603754>

Draft Regional Locational Guidance

<http://www.gov.scot/ISBN/9781839603778>

Sustainability Appraisal

<http://www.gov.scot/ISBN/9781839603785>

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LIST OF ABBREVIATIONS

AoS	Areas of Search
CCC	Committee on Climate Change
CES	Crown Estate Scotland
CfD	Contracts for Difference
cSAC	Candidate Special Area of Conservation
DPO	Draft Plan Option
EMEC	European Marine Energy Centre
EMR	Electricity Market Reform
EOWDC	European Offshore Wind Deployment Centre
EU	European Union
EV	Electric Vehicles
GHG	Greenhouse Gas
GW	Gigawatt
HIE	Highlands and Islands Enterprise
HRA	Habitats Regulations Appraisal
IPCC	Intergovernmental Panel on Climate Change
JNCC	Joint Nature Conservation Committee
LCOE	Levelised Cost of Energy
MGN	Marine Guidance Note
MOD	Ministry of Defence
MPA	Marine Protected Area
MW	Megawatt
NGO	Non-Governmental Organisations
NM	Nautical Miles
N-RIP	National Renewables Infrastructure Plan
O&C	Opportunity and Constraint
O&M	Operations and Maintenance
ORE Catapult	Offshore Renewable Energy Catapult
PMF	Priority Marine Features
pMPA	Possible Marine Protected Area
pSPA	Proposed Special Protection Area
RLG	Regional Locational Guidance
SA	Sustainability Appraisal
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SEIA	Socio Economic Impact Assessment
SLVIA	Seascape, landscape and visual impact assessment
SMP	Sectoral Marine Plan
SNCB	Statutory Nature Conservation Bodies
SNH	Scottish Natural Heritage
SOWEC	Scottish Offshore Wind Energy Council
SPA	Special Protection Area
TCE	The Crown Estate
The Plan	The Sectoral Marine Plan for Offshore Wind
UK Sector Deal	The UK Sector Deal for Offshore Wind
UXO	Unexploded Ordnance

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MINISTERIAL FOREWORD



Mairi Gougeon
Natural Environment Minister



Paul Wheelhouse
Minister for Energy, Connectivity and the Islands

Earlier this year, Scotland became one of the first countries in the world to acknowledge the fact that we are facing a global climate emergency and the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 contains some of the most ambitious statutory emissions reduction targets anywhere in the world.

The Committee on Climate Change advice to the UK, Scottish and Welsh governments (published 2 May 2019)¹ highlights the role that offshore wind can play in helping Scotland and the UK achieve ‘net zero’ by 2050 or earlier.

Scotland has significant potential for further offshore wind development, with a large proportion of Europe’s estimated offshore wind resources. In particular, our deeper waters offer tremendous potential for future offshore wind development and innovation. Exploiting offshore wind technology in an environmentally sustainable way will enable Scotland to lead the world in the transition to the low carbon economy over the next four decades and offers huge industrial and economic potential for Scotland.

The further development of offshore wind in Scotland, however, is not without challenges, which we will need to work together to address. It is essential that our marine resources are appropriately managed, if we are to realise the significant potential for renewable energy generation our seas can offer, whilst protecting the natural goods and services our marine environment provides for both current and future generations to enjoy.

The *draft Sectoral Marine Plan for Offshore Wind Energy* (“the draft Plan”) is our vision for future offshore wind energy development up to 2030 and beyond. The draft Plan seeks to maximise the benefits for Scotland, our communities and our people, striking a balance between economic, social and environmental needs. Our marine environment is perhaps our greatest natural asset and we believe that the draft Plan

¹ Committee on Climate Change, *Net Zero – The UK’s contribution to stopping global warming* (May 2019). Available at: <https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/>

provides a clear route to support further sustainable offshore wind development in Scotland which supports our transition to a low carbon economy.

This draft Plan builds on previous sectoral marine planning exercises undertaken in 2011 and 2013 and the Scottish Government has worked with a wide range of stakeholders during the development of this draft Plan in order to identify the most sustainable options for further commercial-scale offshore wind development in Scottish waters. This consultation seeks your views on these draft Plan Options before we look to finalise and adopt the final version of the Plan in 2020 and we look forward to hearing your views on our draft Plan over the coming months.

1. Introduction

The Scottish Government is committed to ensuring secure, reliable and affordable energy supplies, within the context of long-term decarbonisation of energy generation. The continued growth of the renewable energy sector in Scotland is an essential feature of the future clean energy system and a potential key driver of economic growth. As a nation with an abundance of renewable energy resources, opportunities exist not only to meet domestic needs, but also to export low carbon energy to the rest of UK and Europe.

To date, Scotland has seen a significant amount of offshore wind energy activity, with eight offshore wind farms (including two floating wind farms) having received consent and a further six currently operational, equating to a total generating capacity of just over 5 GW. Our first Sectoral Marine Plan for Offshore Wind Energy (*Blue Seas Green Energy*) (“the 2011 Plan”) was adopted in 2011,² with draft wind, wave and tidal plans subsequently produced in 2013.³

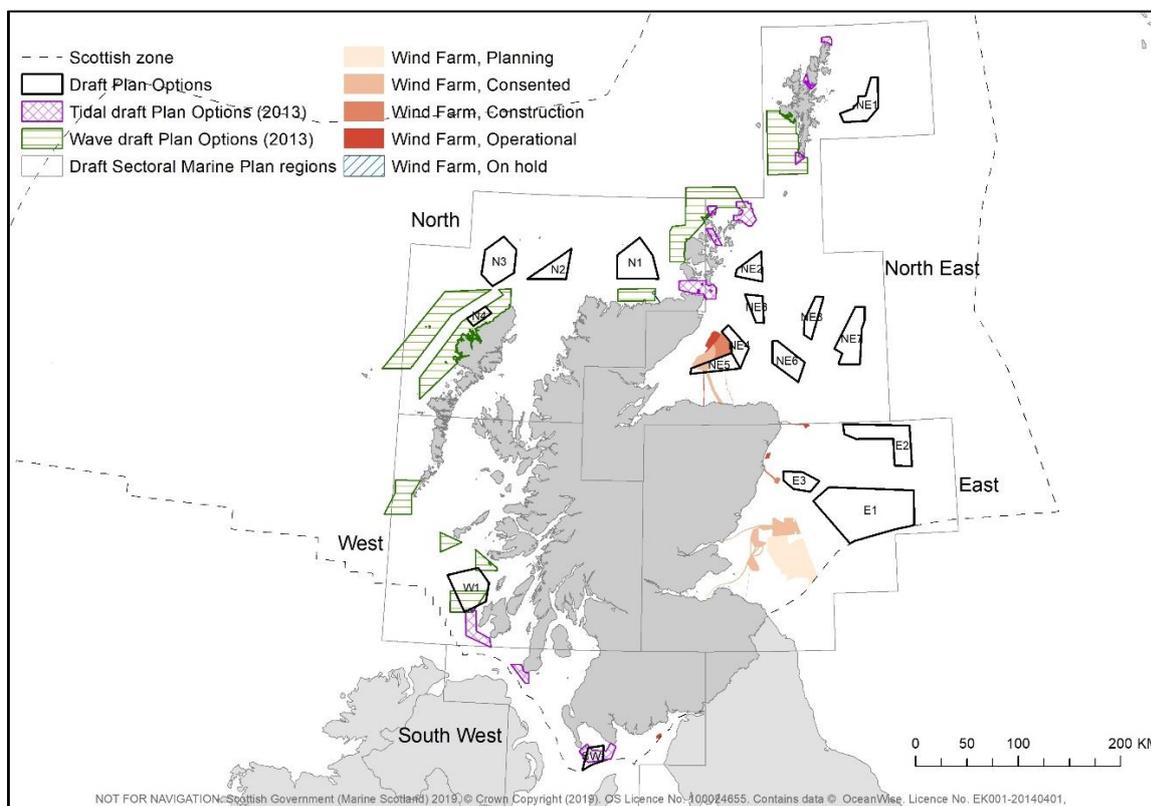


Figure 1 Current and planned offshore energy generation, DPOs and draft Plan regions

² Scottish Government, *Blue Seas Green Energy* (March 2011) Available at: <https://www2.gov.scot/Topics/marine/marineenergy/wind>

³ Further information available here: <https://www2.gov.scot/Topics/marine/marineenergy/Planning>

Three of the six short-term option sites identified in the 2011 Plan have progressed to consenting (Beatrice, Inch Cape and Neart na Gaoithe), with Beatrice Offshore Wind Farm becoming operational in 2019 with an installed capacity of 588 MW. As part of the 3rd UK Offshore Wind Farm Leasing Round, two Round 3 sites are being progressed in Scottish Waters - the Firth of Forth Offshore Wind Zone and the Moray Firth Offshore Wind Zone.

Recent technological, policy, regulatory and market developments, such as the commitments outlined in the *UK Offshore Wind Sector Deal*,⁴ the development of new technologies suitable for deployment in deeper water and the aspirations established in recent climate change legislation, however, have presented the opportunity for Scottish Ministers' to undertake a new strategic planning process. This planning process will ensure that the spatial strategy is in place to support the forthcoming CES ScotWind leasing round and enable the continued successful development of commercial-scale offshore wind. This draft Plan builds upon the work undertaken in 2011 and 2013 and encompasses deep water sites, as well as sites more suitable for the deployment of traditional fixed-bottom technologies.

Offshore wind energy has the potential to play a pivotal role in Scotland's energy system over the coming decades. As the amount of planned and constructed offshore wind development increases, however, opportunities to install offshore windfarms closer to shore and/or in shallower waters will decrease, resulting in the need to explore opportunities to develop sites located further offshore and/or in deeper waters. These types of development pose new technical and financial constraints which will need to be overcome, however, Scotland has natural advantages in terms of a combination of high wind speeds and availability of deep water sites, which help to address these challenges. The development of deep water wind also provides an opportunity to further develop offshore wind supply chains and to lever existing infrastructure and supply chain capabilities from the offshore oil and gas industry and creating the requisite conditions to position Scotland as a world leader in deep water wind technologies.

⁴ Department for Business, Energy and Industrial Strategy, *Offshore wind Sector Deal* (2019). Available at: <https://www.gov.uk/government/publications/offshore-wind-sector-deal>

1.1 Purpose and vision

The Plan aims to identify the most sustainable plan options for the future development of commercial-scale offshore wind energy in Scotland, including deep water wind technologies and covers both Scottish inshore and offshore waters (extending out to the Exclusive Economic Zone limit).

This Plan seeks to contribute to the achievement of Scottish and UK energy and climate change policy objectives and targets, through the provision of a spatial strategy to inform the seabed leasing process for commercial offshore wind energy in Scottish waters, which;

- Minimises the potential adverse effects on other marine users, economic sectors and the environment resulting from further commercial-scale offshore wind development; and
- Maximises opportunities for economic development, investment and employment in Scotland, by identifying new opportunities for commercial-scale offshore wind development, including deeper water wind technologies.

This Plan has been developed to ensure consistency with the objectives and principles set out within Scotland's National Marine Plan (2015) and the UK Marine Policy Statement (2011).

For the purposes of the draft Plan and Sustainability Appraisal, commercial-scale offshore wind projects are defined as projects capable of generating more than 100 MW of electricity. This definition of 'commercial-scale' originated from historic leasing rounds for projects in Scottish Waters, in which the term 'commercial-scale' was considered to apply to projects with a generating capacity of over 100 MW of electricity.

Whilst the Plan only seeks to identify DPOs suitable for the development of commercial-scale offshore wind, the Scottish Government remains committed to considering opportunities for local, small-scale and innovative offshore wind development within Scottish waters. It is recommended that early and proactive engagement takes place with Crown Estate Scotland, Marine Scotland and other stakeholders (as appropriate) to discuss any such proposals.

Given the increase in turbine size and output in recent years, Scottish Ministers wish to consider whether the 100 MW threshold should be raised, in order to facilitate the development of new and innovative test and demonstration projects capable of generating more than 100 MW of electricity. We are seeking views on the 100 MW threshold as part of the consultation on the draft Plan (please see further the consultation questions included at section 8). Such test and demonstration projects often have different planning considerations and we would therefore encourage early engagement regarding these types of projects with Marine Scotland, CES and other stakeholders.

1.2 The draft Plan

This draft Plan identifies 17 Draft Plan Options (“DPOs”), split across five regions (see Figure 2), which are capable of generating several GW of renewable energy. The potential impacts of the DPOs are assessed in the Sustainability Appraisal, Strategic Environmental Assessment, Habitats Regulations Appraisal and Socio Economic Impact Assessment, which have been published for consultation along with this draft Plan. Further information about these impact assessments is outlined at section 3 below.

There are, of course, uncertainties regarding the timing, type and scale of future development within the DPOs identified and these factors are beyond the control of the Plan. There may be project-level technical, environmental and economic constraints which could limit the scale and timing of development within each DPO. Further, development may be taken forward in some regions and DPOs in preference to others. The draft Plan, therefore, has been prepared and assessed using low, medium and high regional and national deployment scenarios (for further details, see section 3.1), to reflect this uncertainty. During the planning process, the higher deployment scenario was increased from 8 GW to 10 GW, reflecting the outputs of the Opportunity and Constraint analysis, anticipated future demand and market appetite for further development. The SEA also recognises that, at present, limiting the scale of development under the Plan to 10 GW is required to reduce or offset the potential environmental effects of development. This figure is still higher than the Scottish Offshore Wind Energy Council’s (“SOWEC”) goal to deliver at least 8 GW of offshore wind in Scottish waters by 2030.⁵

⁵ SOWEC has been formed to maximise the benefits to Scotland of deployment of offshore wind in Scottish waters and consists of sub-groups including; developers, skills, clusters, innovation and barriers to deployment/route to market. Further information about SOWEC is available here: <https://www.offshorewindscotland.org.uk/sowec/>

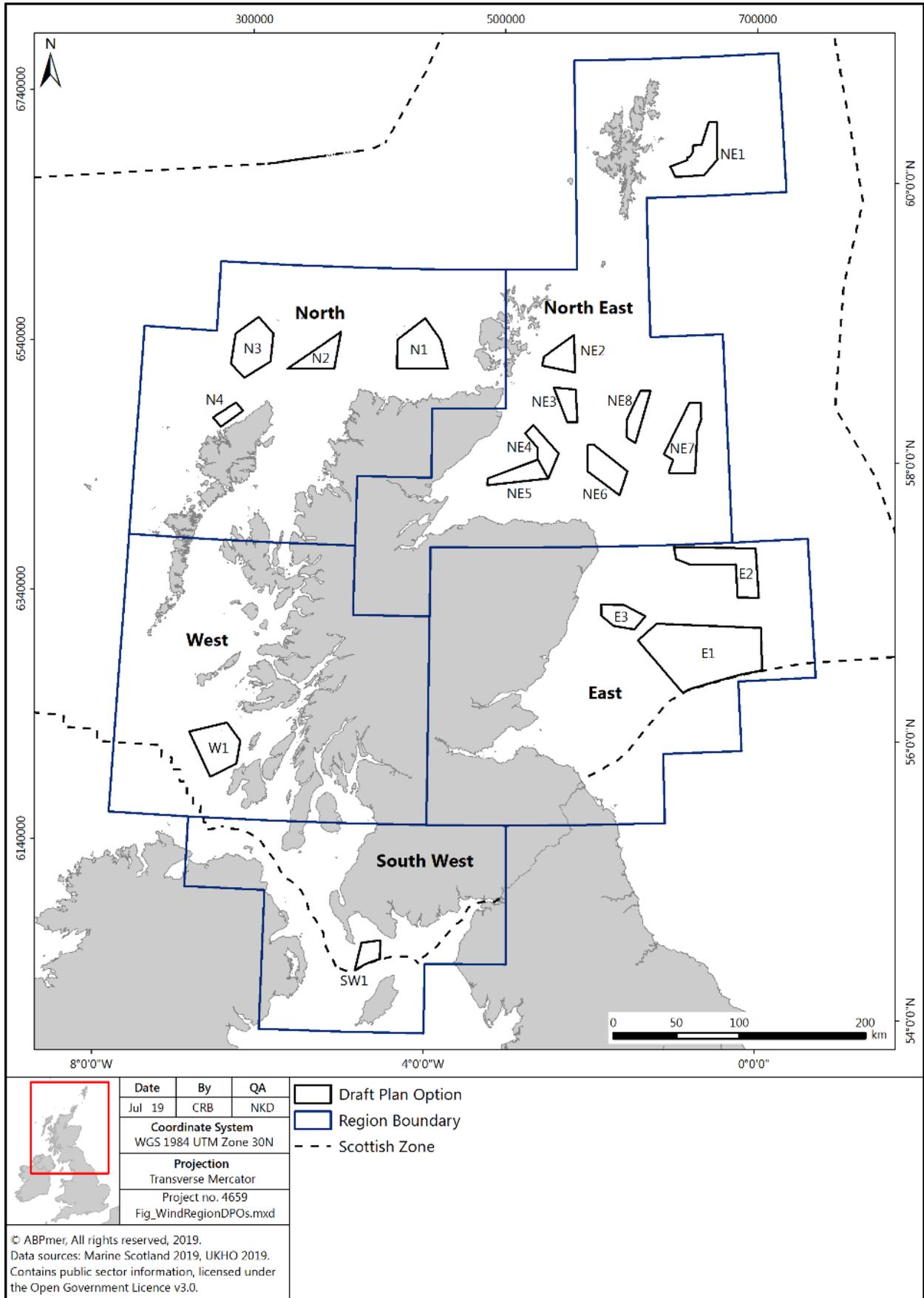


Figure 2 Draft Plan Options (2019)

1.3 The final Plan

Following consultation on the draft Plan, the final Plan will be prepared and presented for approval by the Scottish Ministers. In the event that substantial changes are required as a result of this consultation process, further assessment and consultation may be required. A Post Adoption Statement, outlining any changes made to the draft Plan, will be published with the final Plan.

It should be noted that the final Plan will not provide decisions on the proposed development and management of Plan Options. The Plan articulates the Scottish Government's strategic vision and objectives for future commercial-scale offshore wind development and articulates the spatial framework to inform the CES leasing process. The Plan will guide the relevant consenting bodies when making decisions on individual licence and consent applications, but should not be considered as pre-determining those decision-making processes.

In addition, the final adopted Plan will be subject to iterative plan review, as set out below at section 5.3, which will ensure that the Plan remains reflective of current scientific understanding and knowledge, as well as the wider regulatory and policy context. It is currently anticipated that the final Plan will be reviewed and updated to reflect and inform the spatial requirements for any further leasing round(s) from CES.

1.4 Crown Estate Scotland seabed leasing (“ScotWind”)

In November 2017, Crown Estate Scotland (“CES”) announced its intention to run a further leasing round for commercial-scale offshore wind energy projects in Scottish waters. The final Plan will provide the spatial framework for this leasing round, by identifying which Plan Options are available for leasing.

The ScotWind leasing process is expected to commence following the publication of this draft Plan with Option Agreements to be concluded between CES and offshore wind developers after the Plan is adopted. For further detail regarding the relationship with the ScotWind leasing process, please see below at section 3.1. and Figure 7.

1.5 National and Regional Marine Plans

The Plan has also been developed in accordance with the strategic aims of the National Marine Plan (2015), which addresses the potential for interactions between renewable energy development and other marine users (including, but limited to, recreational users, commercial fishers, other construction works, shipping traffic, ports and harbours).

Regional marine plans are currently in the process of being prepared within those Scottish Marine Regions where there is an established Regional Marine Planning Partnership. The planning competence of these Regional Marine Planning Partnerships extends out to 12 nautical miles. Regional marine plans are required to be developed in accordance with the National Marine Plan (unless relevant considerations indicate otherwise) and will be required to take into account the Plan

Options identified via the sectoral marine planning process, as well as co-ordination with the CES leasing regime and any relevant grid requirements and initiatives. Figure 3 shows the DPOs in relation to the Scottish Marine Regions.

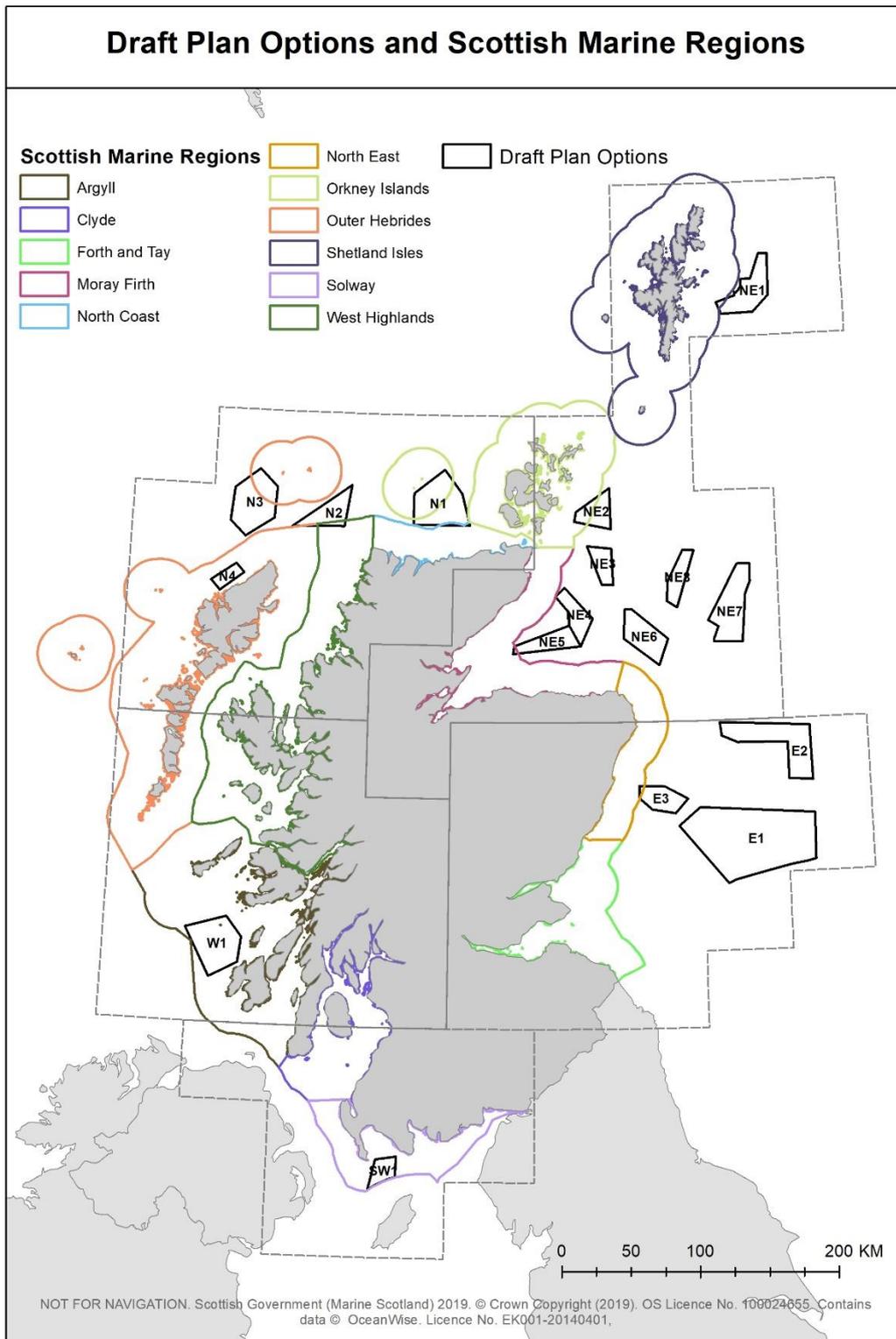


Figure 3 Draft Plan Options and Scottish Marine Regions

1.6 Scottish Offshore Wind Policy

As set out in the Government's Programme for Scotland 2019-20, we will continue to work hard to make Scotland an attractive place to invest in offshore wind energy developments, and will take further steps this year to provide clarity and certainty across the sector.

The draft Scottish Offshore Wind Energy Policy Statement⁶ sets out our ambition to capitalise on the potential that offshore wind development can bring to Scotland and the role this technology could play in meeting our commitment to reach net zero by 2045. The Policy Statement builds on the ambitions outlined in Scotland's Energy Strategy⁷, published in December 2017, which set out the 2050 vision for energy in Scotland, including generation and energy usage targets and strategic priorities for action. The Plan will form a key component of the implementation of the Offshore Wind Policy Statement, by identifying suitable areas for further offshore wind deployment and identifying a pipeline of potential projects for the industry and supply chain. The draft Scottish Offshore Wind Energy Policy Statement is currently subject to consultation and is anticipated to be finalised in 2020.

The UK Sector Deal targets the generation of 30 GW of offshore wind energy by 2030 and commits to key enabling actions, such as certainty regarding future Contracts for Difference ("CfD") rounds, investment in the UK supply chain and a commitment by the renewables sector to increase UK supply chain content to 60% by 2030 (including increases at the capital expenditure phase). The Scottish Government played a key role in the development of the UK Sector Deal, to ensure that Scotland is well placed to gain long-term benefits as the delivery of the deal progresses.

Following the Offshore Wind Supply Chain Summit, held on 2 May 2019 and chaired by the Finance Secretary and the Energy Minister, the Scottish Government set out its intention to explore the levers and regulatory instruments at the disposal of Ministers to increase local content in projects. Whilst Scottish Ministers remain open to industry efforts to increase local content in projects, they have been clear that they will do everything within their devolved competence to secure an equitable economic return for the Scottish supply chain.

SOWEC has set out the scale of ambition necessary if Scotland is to meet its share of the UK Sector Deal's targets with scale and pace. SOWEC believes that the sector in Scotland should seek to deliver at least 8 GW of offshore wind in Scottish waters by 2030 and increase the number of offshore wind jobs in Scotland to more than 6,000, a 75% increase on 2019 figures. The draft Plan is reflective of the scale and ambition of SOWEC's vision and recommendations and any further

⁶ <https://consult.gov.scot/energy-and-climate-change-directorate/draft-offshore-wind-policy-statement/>

⁷ Scottish Government, *The future of energy in Scotland: Scottish energy strategy* (2017). Available at: <https://www.gov.scot/publications/scottish-energy-strategy-future-energy-scotland-9781788515276/>

recommendations made by SOWEC will be considered during the finalisation of the Plan.

1.7 Wider context

The Plan development process has taken into account wider policies and priorities relating to climate change, lowering carbon emissions and promoting green energy to ensure that the Plan supports the delivery of our national and international obligations. The process has also taken into consideration the potential economic, social and environmental impacts of offshore wind energy and has been undertaken in accordance with relevant Scottish, UK and EU legislation. A brief overview of the wider legislative and policy context is provided in Figure 4.

Achieving Net Zero

The publication of the Intergovernmental Panel on Climate Change (“IPCC”) report,⁸ outlined that the world would need to reach a point of ‘net zero’ GHG emission by 2050 in order to avoid “long lasting and irreversible changes” to the global climate. The subsequent Committee on Climate Change (“CCC”) advice to UK, Scottish and Welsh governments,⁹ concluded that reaching the net zero target in the UK is largely achievable with known technologies, but that further policies and concerted action was required to reach this goal. The CCC Report highlighted that extensive electrification, particularly of transport and heating, would require a major expansion of renewable and other low-carbon power generation, leading to around a doubling of electricity demand. That would equate to around 75 GW of offshore wind in 2050, compared to 8 GW available currently and the 30 GW targeted by the UK Offshore Wind Sector Deal. The CCC Report also identified key actions and the role of the Scottish Just Transition Commission in ensuring a Just Transition to the low-carbon economy which is fair for all.

The CCC Report recommended a net-zero date of 2045 for Scotland, reflecting Scotland’s greater relative capacity to remove emissions than the UK as a whole. In line with this advice, amendments were lodged to the Climate Change Bill, which raised the ambition of the 2030 and 2040 targets for emissions reductions to 70% and 90% respectively. The newly passed Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 implements some of the most stringent statutory targets in the world, with the aim of ending our contribution to climate change, definitively, within a generation. Future iterations of the Plan may need to plan accordingly to support these aspirations.

⁸ Intergovernmental Panel on Climate Change, *Special Report: Global Warming of 1.5C* (October 2018). Available at: <https://www.ipcc.ch/sr15/>

⁹ Committee on Climate Change, *Net Zero – The UK’s contribution to stopping global warming* (May 2019). Available at: <https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/>

Draft Sectoral Marine Plan for Offshore Wind Energy (2019)

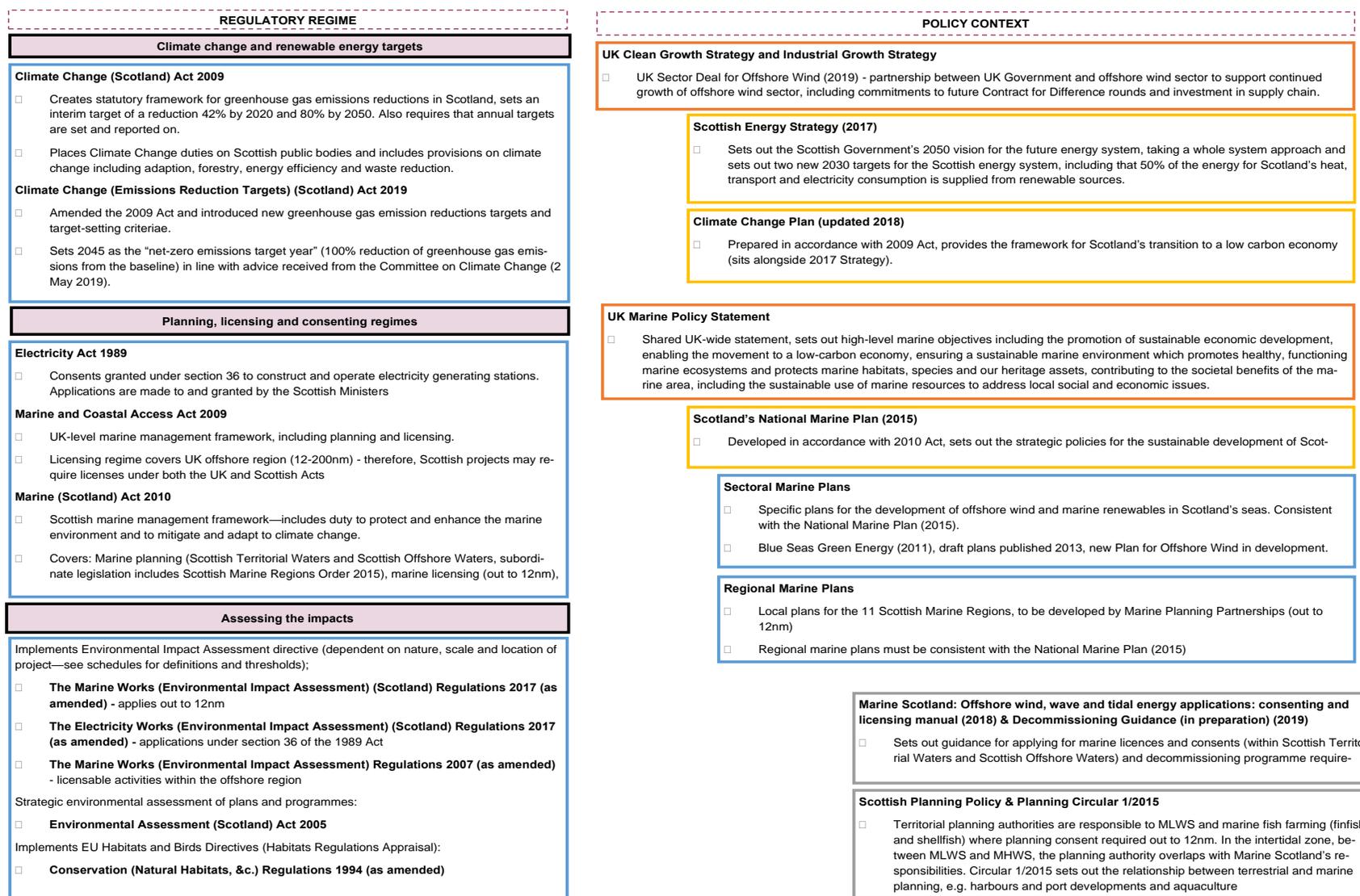


Figure 4 UK and Scottish policy and regulatory context

Future energy demand and grid capacity

Our energy demand and mix is changing rapidly and will continue to do so for the coming decades, as a result of factors such as; the need to reduce greenhouse gas emissions, the increased demand for low-carbon electricity for transport, ensuring security of energy supplies and tackling energy poverty.

The *Future Energy Scenarios (“FES”)* 2019 report¹⁰ identifies that the commitment to net zero requires greater action in relation to electrification, energy efficiency and carbon capture than predicted in previous scenarios. Further significant offshore wind farm development will require further investment in and improvements to our electricity transmission and distribution systems, particularly for more remote areas, as well as measures to reduce barriers such as connection costs for generators.

For Scotland, National Grid scenarios suggest a total Scottish generating capacity of between 15 and 25 GW by 2035 (10-20 GW low carbon generation). With demand in Scotland not expected to exceed 4.7 GW by 2035, there is potential to export power south, out of Scotland into England, for significant periods of time.¹¹ A number of projects are currently being undertaken to improve connectivity within Scotland and between Scotland and the rest of the UK, which will facilitate the export of electricity.

Marine Scotland are working closely with the Offshore Renewable Energy Catapult (“ORE Catapult”) and transmission operators to explore opportunities regarding the grid network, including novel approaches and technology, to ensure that the necessary infrastructure is in place to facilitate further development.

The likely scale and location of future offshore wind development presents challenges around grid connection and costs for developers. Innovative approaches such as hybrid projects (where transmission infrastructure and assets are shared between projects), electricity conversion and battery storage could help to address these challenges. These approaches may offer potential cost and space savings, as well as potential reductions in environmental impacts, however, there are legal and regulatory barriers that would need to be addressed prior to deployment.¹²

In addition, there exists the opportunity for further offshore development in Scottish waters to support the integration of the European offshore grid network. Whilst there are technical, regulatory and financial challenges to the integration of the offshore grid network, such a network could offer important socio-economic and environmental benefits to Scotland and other North Seas countries, whilst supporting the energy transition and decarbonisation of the energy sector. The European North

¹⁰ National Grid Electricity System Operator, *Future Energy Scenarios* (July 2019). Available at: <http://fes.nationalgrid.com/media/1409/fes-2019.pdf>

¹¹ National Grid, *Electricity Ten Year Statement* (2018). Available at: <https://www.nationalgrideso.com/insights/electricity-ten-year-statement-etys>

¹² See further, Roland Berger GmbH, *Hybrid Projects: How to reduce costs and space of offshore developments (North Seas Offshore Energy Clusters Study)* (December 2018). Available at: https://publications.europa.eu/en/publication-detail/-/publication/59165f6d-802e-11e9-9f05-01aa75ed71a1/language-en?WT.mc_id=Searchresult&WT.ria_c=37085&WT.ria_f=3608&WT.ria_ev=search

Seas countries have been working together to facilitate the strategic, co-ordinated and cost-effective development of hybrid projects, with one project nearing commissioning.

The development of improved grid connectivity may also provide an opportunity for our islands to develop clean energy projects and interconnectors for Orkney and Shetland are currently at an early development stage. Recent research published by CES has explored how the integration of offshore renewables (including floating offshore wind, tidal and wave projects) into local energy systems can support the commercial viability of offshore projects, whilst benefitting local coastal communities.¹³

We would therefore encourage developers considering these types of approaches and solutions to engage with Marine Scotland, CES, other developers and operators as early as possible in the process.

¹³ See further, Crown Estate Scotland, *Offshore Generation, Energy Storage & Systems Feasibility Study* (2019). Available at: <https://www.crownestatescotland.com/maps-and-publications>

2. Plan development process

The sectoral marine planning process (as shown in Figure 5) is an iterative process, informed through stakeholder engagement and evidence from the related social, economic and environmental assessments. All of the information and consultation feedback gathered since the initial Areas of Search were identified in early 2018 has been used to support the Scottish Ministers in identifying DPOs to progress to the next phase of the plan process.

The DPOs have emerged through an examination of spatial data considerations in addition to advice and other related information provided by members of the Steering Groups, as well as stakeholders.

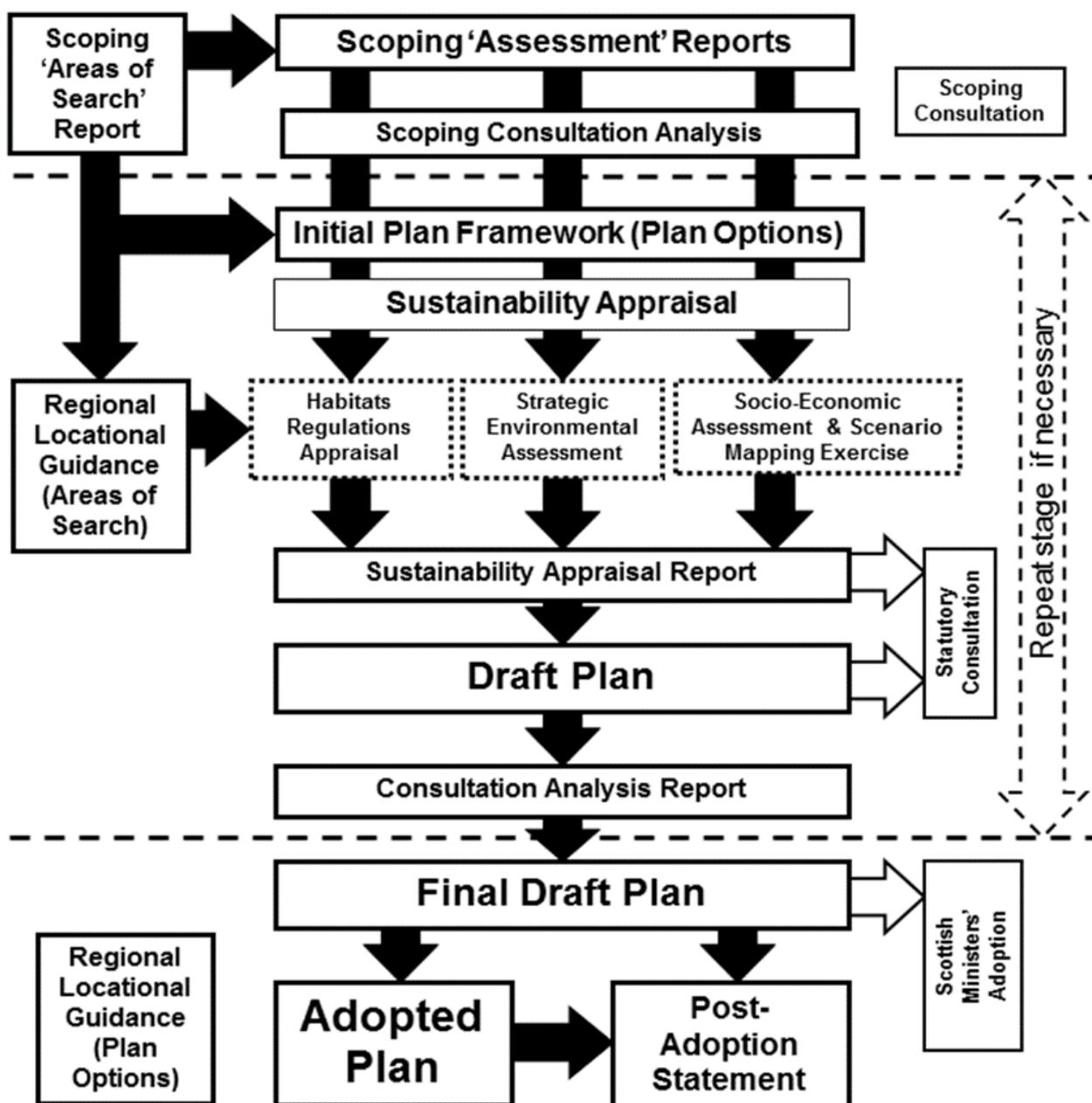


Figure 5 Sectoral Marine Plan for Offshore Wind Energy Development Process

The key stages of the planning process in relation to the identification of the Draft Plan Options are:

1. Opportunity and Constraint Analysis – Iteration 1
2. Opportunity and Constraint Analysis – Iteration 2 - Single Issue Constraint Analysis
3. Scoping Consultation
4. Opportunity and Constraint Analysis – Iteration 3
5. Identification of Draft Plan Options
6. Next Steps

1. Opportunity and Constraint Analysis – Iteration 1

The identification of initial Areas of Search (“AoS”) was carried out through the use of an Opportunity and Constraint (“O&C”) analysis.¹⁴ It built upon previous work carried out by Marine Scotland Science (“MSS”) in 2011¹⁵ and the production of draft Regional Locational Guidance for potential deep water floating offshore wind test sites in 2014.¹⁶ The analysis was iterative, so updates could be incorporated as required in order to reflect stakeholder feedback.

Full details of the O&C analysis can be found in the AoS scoping report published for consultation in 2018.¹⁷ The O&C analysis sought to identify areas of opportunity for the future development of offshore wind, whilst also identifying areas that minimised potential negative impacts to the environment, other sectors and users of the sea. This analysis was completed through the use of GIS and numerous spatial data resources.

2. Opportunity and Constraint Analysis – Iteration 2

Sectoral engagement workshops were held in spring 2018. The AoS were then refined with consideration to specific spatial issues and feedback from the workshops.

This refinement process identified a range of distinct AoS (see Figure 6). As the draft Plan is technology neutral, no commercial or technology specific information was used in this refinement process.

¹⁴ <https://www.gov.scot/publications/scoping-areas-search-study-offshore-wind-energy-scottish-waters-2018/>

¹⁵ Davies, I. M. and Watret, R. (2011) Scoping Study for Offshore Wind Farm Development in Scottish Waters. Scottish Marine and Freshwater Science Vol 2 No 13. Available at: www.gov.scot/Publications/2011/11/28104658/0

¹⁶ <https://www2.gov.scot/Topics/marine/marineenergy/Planning/DRLG>

¹⁷ <https://www.gov.scot/publications/scoping-areas-search-study-offshore-wind-energy-scottish-waters-2018/>

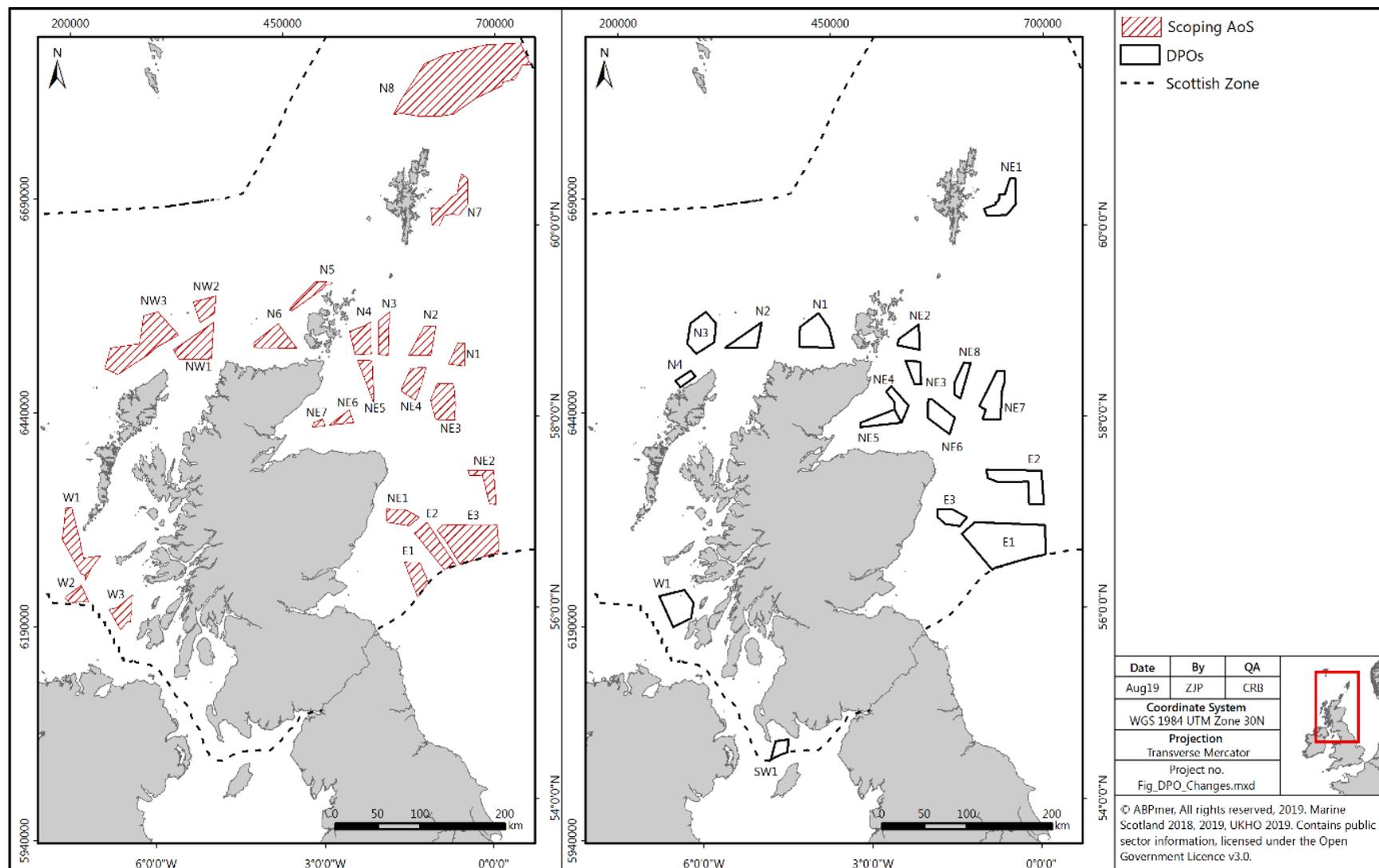


Figure 6 Evolution of Areas of Search to Draft Plan Options

3. Scoping Consultation – Screening and Scoping Reports

Scottish Ministers then consulted on the screening and scoping stages of the Plan process during June and July 2018. Screening and scoping reports were prepared and published online for the SEA, HRA and SEIA alongside the AoS scoping study.

4. Opportunity and Constraint Analysis – Iteration 3

Iteration 3 of the O&C analysis was undertaken, which considered the responses received during the Scoping Consultation, for more details see the Consultation Analysis Report.¹⁸

The AoS were refined with consideration to the outputs of the Iteration 3 O&C Analysis. As a result, certain AoS were either removed or refined to avoid/incorporate certain areas of Scottish Waters.

This stage also considered the areas of seabed proposed by stakeholders via the scoping consultation. A number of the areas proposed overlapped with existing AoS, while others overlapped with areas with higher levels of constraint or entirely new areas.

Upon review of the above information, a number of areas were identified to move forward in the plan process. Accordingly, some additional areas were included at this stage, where there was significant stakeholder interest, but also increased constraint. The Sustainability Appraisal stage assessed these new areas in greater detail.

5. Identification of Draft Plan Options

The 22 revised AoS were made available to the Sectoral Marine Plan Project Board and two Project Steering Groups for consideration and comment.¹⁹

Responses from both the Board and Steering Groups, together with the outputs of the initial assessments, were presented to Scottish Ministers to inform their decision on which AoS should progress to the Sustainability Appraisal for more detailed assessment. 17 revised AoS were selected as DPOs.

6. Next Steps

Following the statutory consultation, the responses received will be subject to consultation analysis. This analysis will be considered by Scottish Ministers and inform their decision on which Options to take forward in the final Plan.

It should be noted that if significant changes are required as a result of the consultation feedback, further assessment and consultation may be required prior to adoption and publication of the final Plan. The Post Adoption Statement (to be published with the final Plan) will detail any changes made to the Plan as a result of consultation feedback.

¹⁸ Available here: <https://consult.gov.scot/marine-scotland/draft-sectoral-marine-plan-for-offshore-wind/>

¹⁹ Further detail regarding the cross sectoral Steering Groups is provided in the *Statement of Public Participation*. Available here: <https://consult.gov.scot/marine-scotland/draft-sectoral-marine-plan-for-offshore-wind/>

3. Impact assessments

Sustainability Appraisal (“SA”) has been undertaken on the DPOs, comprising of a Strategic Environmental Assessment (“SEA”), Habitats Regulations Appraisal (“HRA”) and Social and Economic Impact Assessment (“SEIA”). The findings are set out in the individual SEA, HRA and SEIA reports and summarised in the overall SA report. These reports are available to view and comment on separately and are outlined below.

In addition, draft Regional Locational Guidance (“RLG”) has been prepared for the DPOs, to support further spatial planning and inform project-level site selection and assessment. The draft RLG is also available for review and comment as part of this consultation process.²⁰

The assessments have been undertaken in accordance with the European Commission Directive and the Scottish requirements for Strategic Environmental Assessment,²¹ the Habitats and Birds Directives²² and the requirement to consider social and economic factors under the UK Marine and Coastal Access Act 2009, and in accordance with the methodology agreed by the two cross-sectoral Steering Groups (outlined in the Scoping documentation).²³

The likely significant effects during all phases of offshore wind development, including pre-construction (e.g. unexploded ordnance clearance and survey works), construction, operation and maintenance and decommissioning, have been considered. In order to complete the assessment of potential impacts, a number of underpinning assumptions have been made (these are set out in full in the various assessment reports) but are summarised briefly at section 3.1.

3.1 Underpinning assumptions

The assessment has been undertaken on a technology neutral basis, as it is currently unclear how quickly and to what extent deep water technologies will become cost competitive and, therefore, what the balance of deployed technologies may be. Whilst the precise nature of technology and construction method(s) etc. have implications for the scale and nature of potential impacts, it is not appropriate to make detailed assumptions about these within the assessments. The draft Plan identifies DPOs located in a range of water depths, but does not direct what type of technology or technologies should be deployed within the individual DPOs. Full

²⁰ *Draft Regional Locational Guidance* (2019). Available here: <http://www.gov.scot/ISBN/9781839603778>

²¹ SEA Directive 2001/42/EC and the Environmental Assessment (Scotland) Act 2005

²² Conservation of Habitats and Species Regulations 2017 (in relation to reserved matters), the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) and the Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2017.

²³ See further, Scottish Government, *Sectoral Marine Plan Offshore Wind Scoping Consultation* <https://www2.gov.scot/Topics/marine/marineenergy/Planning/smp-scoping-consultation>

details on the range of technologies and methods assessed were set out in the *Scoping Context Report*.²⁴

The impacts of individual DPOs have been assessed using a realistic maximum deployment scenario for each DPO, which equates to a proportion of the overall area of the DPO. This proportion varies according to the size and conditions of the DPO and has been derived from known constraints on development, early indications as to likely developer interest and established infrastructure to support development during the plan timescale.

Development within DPOs should not exceed the parameters assessed in the Sustainability Appraisal, e.g. meaning that operational development(s) within a DPO should not exceed the maximum realistic development scenario for that DPO (as outlined in Table 1 below and Appendix C of the SEA). The regional scenarios presented have been used in the assessment to provide an indication of potential impacts, however, these regional scenarios will not be used to constrain potential levels of operational development within DPOs.

In addition, the impacts have been assessed at regional and national levels using a range of overall deployment scenarios (3, 5 and 10 GW at a national level). This range of development scenarios has been used within the SEA, HRA and SEIA to assess a wide range of impacts and reflect the inherent uncertainty in carrying out strategic assessments and the possible scales of development within each DPO, regionally and nationally. These figures are outlined in Table 1.

A recent review of the density of offshore wind turbine layouts of recent European offshore wind projects, indicated average deployment densities of between 4-6.5 MW/ km²,²⁵ and, therefore, an average deployment density of 5 MW/ km² has been assumed in the assessment. When this average deployment density is applied, it is estimated that approximately 2,000 km² of seabed would need to be operationally developed to deliver up to 10 GW of generating capacity.

²⁴ See further, Section 6, Scottish Government, *Sectoral marine plan for offshore wind energy: context report* (June 2018). Available at: <https://www.gov.scot/publications/sectoral-marine-plan-offshore-wind-energy-encompassing-deep-water-plan>

²⁵ Deutsche Windguard, *Capacity Densities of European Offshore Wind Farms* (2018). Available at: https://vasab.org/wp-content/uploads/2018/06/BalticLINes_CapacityDensityStudy_June2018-1.pdf

Implications of development scenarios for the first cycle of ScotWind Leasing

The development scenarios outlined in the Sustainability Appraisal equate to the operational development of approx. 2,000 km² of seabed to deliver up to 10 GW of generating capacity.

It is recognised, however, that due to the nature of the leasing and development processes and likely attrition rates,²⁶ Crown Estate Scotland will need to offer Option Agreements for an area of greater than 2,000 km² to be likely to enable the operational development of up to 10 GW of generating capacity.

Making an area of up to 8,600 km² of seabed available for Option Agreements via the first cycle of ScotWind Leasing could, therefore, support the development of projects capable of delivering up to 10 GW of total generating capacity.²⁷

It should be noted, however, that the total generating capacity installed in leased areas of seabed arising from option agreements awarded in the first cycle of ScotWind Leasing should not exceed 10 GW and the parameters of any proposed developments within a DPO should not exceed the maximum realistic development scenario assessed for that DPO in the Sustainability Appraisal.

Figure 7 Implications of development scenarios for the first cycle of ScotWind Leasing

²⁶ Scottish Renewables, *An industry view of the Draft Sectoral Marine Plan for Offshore Wind* (December 2018), recommended a 30% MW attrition rate - a higher figure for Scotland given the more challenging conditions here relative to the rest of the UK, particularly regarding water depth, ground conditions and grid charges. This attrition rate reflects reduction in eventual capacity both at a project level (where an entire project ceases to be progressed), and within project (as MW tend to be lost from initial design to construction).

²⁷ To result in a final area of seabed under lease capable of enabling up to 10 GW of generating capacity, the initial area covered by Option Agreement arising from ScotWind Leasing needs to allow for the attrition of capacity (as per 26 above). The initial area needs to offer the flexibility designed into ScotWind Leasing, which allows for Option Agreements areas to be three times the area of the eventual project, to reduce the risk to developers that a viable project may not be identified within an Option Agreement area. Applying these factors alongside the assessment density (5 MW/km²), indicates that an initial area of seabed under option agreement of 8,571.4 km² would be necessary to best enable operational development of up to 10 GW of generating capacity.

Table 1 Summary of maximum realistic development scenarios (DPO, regional and national levels)

Region	DPO	Total DPO Area (km ²)	Realistic maximum development scenario for DPO (GW)	Realistic development as percentage of total DPO Area	Regional Low Scenario (GW)	Regional Medium Scenario (GW)	Regional High Scenario (GW)
East	E1	3816	3	16%			
	E2	1287	2	31%			
	E3	474	1	42%			
	Sub-total	5577	6		1	2	3
North East	NE1	776	2	52%			
	NE2	464	1	43%			
	NE3	339	1	59%			
	NE4	440	1	45%			
	NE5	496	1	40%			
	NE6	699	2	57%			
	NE7	1027	3	58%			
	NE8	401	1	50%			
Sub-total	4641	12		1.5	3	4.5	
North	N1	1163	2	34%			
	N2	560	2	71%			
	N3	1106	2	36%			
	N4	200	1	100%			
	Sub-total	3030	7		1	2	3
West	W1	1107	2	36%			
	Sub-total	1107	2		0.5	1	2
South West	SW1	292	1	68%			
	Sub-total	292	1		0.3	0.6	1
Total:		14646	28		4.3	8.6	13.5
Scaled back to national scenarios (GW):					3	5	10

3.2 Strategic Environmental Assessment (“SEA”)

SEA is intended to increase the consideration of environmental issues during decision-making related to strategic documents such as plans, programmes and strategies. For the draft Plan, it has been used to test and comment on the selection of DPOs from a strategic perspective and to identify potential strategic environmental constraints, in order to steer future development. The process is applicable to strategic and, to some extent, regional issues.

As a result, the SEA findings have led to broad recommendations for the draft Plan as a whole. The findings can also, where appropriate, be used as a starting point for further, detailed, data collection and environmental assessment – either to support strategic level review or for project-level assessment. A summary of the key findings for each DPO are set out in section 4.

The SEA is available here: <http://www.gov.scot/ISBN/9781839603761>

3.3 Habitats Regulations Appraisal (“HRA”)

It was identified at the pre-screening stage that HRA would be required, as the possibility of likely significant effects on European site(s) from the Plan could not be excluded (either as a result of development within a DPO in isolation or in-combination with other plans or projects). Details of the HRA screening process are included in the *Sectoral Marine Plan for Offshore Wind Energy: Strategic Habitat Regulations Appraisal Pre-Screening Report*.²⁸

The HRA has included consideration of impacts on Special Areas of Conservation (“SAC”), candidate and possible SAC (“cSAC and pSAC”), Special Protected Areas (“SPA”), proposed SPA (“pSPA”), Sites of Community Importance (“SCI”) and Ramsar sites (listed under the Ramsar Convention on Wetlands of International Importance). HRA has been undertaken for all DPO within the Plan and has resulted in the implementation of plan-level mitigation measures to avoid potential adverse impacts on site integrity, as well as recommendations for project-level mitigation measures. A summary of the key findings for each DPO are set out in section 4.

The HRA is available here: <http://www.gov.scot/ISBN/9781839603754>

3.4 Socio-Economic Impact Assessment (“SEIA”)

The SEIA has considered the potential negative and positive social and economic impacts of the Plan on a range of sectors. Due to uncertainties regarding the potential scale of development within any DPO, regionally or nationally, assessment has been undertaken for a range of deployment scenarios (ranging from low-medium-high), which have been compared to the *do nothing* approach. The SEIA has also been undertaken on a worst case scenario basis, given the uncertainty around development and technology types at a plan level. More detailed project-level assessment will be required accordingly.

²⁸ (June 2018). Available to view here: <https://www.gov.scot/publications/sectoral-marine-plan-offshore-wind-energy-encompassing-deep-water-plan-9781788519632/pages/4/>

The SEIA identified that DPOs are most likely to have negative impacts on the commercial fisheries, commercial shipping, tourism and recreation sectors. The SEIA also identified that development may also have impacts for other sectors (such as the defence and aviation sectors). The SEIA therefore identified a range of possible project-level mitigation measures, such as; adherence to Maritime and Coastguard Agency guidance regarding shipping lanes, spatial planning within DPOs to avoid areas of higher fishing activity, maintaining access to recreational fishing grounds within arrays or reduction in turbine sizes to minimise landscape, seascape and visual impacts. Positive impacts in relation to Gross Value Added and employment, including social impacts, were also assessed in the SEIA. A summary of the key findings for each DPO are set out in section 4.

The SEIA is available here: <http://www.gov.scot/ISBN/9781839603792>

3.5 Sustainability Appraisal (“SA”)

SA is a tool to undertake cross-sectoral assessment of the impacts of plans, in order to promote sustainable development and has been an integral part of the every stage of the planning process. The SA has contributed to the Scottish Ministers’ decision-making process and the SA report provides an overview of the conclusions of the component reports (i.e. SEA, HRA and SEIA).

The SA is available here: <http://www.gov.scot/ISBN/9781839603785>

3.6 Consultation Analysis Report (“CAR”)

Extensive stakeholder consultation has been undertaken throughout the planning process to support and identification of DPOs and the development of the draft Plan. During June to July 2018, a consultation exercise on the Scoping Areas of Search and supporting screening and scoping reports was undertaken and the feedback used to further refine the O&C Model and identification of revised AoS. Further stakeholder engagement was undertaken post-scoping to support the identification of DPOs. The CAR provides a summary of the feedback received during the scoping and post-scoping periods. A further report, detailing the outcome of this consultation exercise, will be published with the final Plan.

The CAR is available here: <https://consult.gov.scot/marine-scotland/draft-sectoral-marine-plan-for-offshore-wind/>

3.7 Supporting partial impact assessments

Draft partial Islands Communities Impact and Equalities Impact Assessments have been prepared, to consider how the draft Plan may impact on island communities and equalities considerations. These partial assessments are available to view as separate documents and views are sought on whether these partial assessments have identified all potential impacts.

These partial impact assessments are to view available here: <https://consult.gov.scot/marine-scotland/draft-sectoral-marine-plan-for-offshore-wind/>

4. Draft Plan Options

4.1 National perspective

The draft Plan identifies 17 DPOs across the five regions within Scottish Waters (see Figure 8). As the DPOs are spatially distinct within the five regions, there is limited potential for cumulative negative effects at a national scale. Conversely, there exists the potential for cumulative positive effects, through a significant contribution to the decarbonisation of the energy sector in Scotland and the establishment of a secure energy supply.

Regional cumulative effects include the potential for negative effects on bird populations, benthic habitats, cetaceans, navigational safety, seascape/landscape and commercial fisheries. It is recognised that both regionally and nationally, the level of impacts will vary according to which DPOs become the focus of development. The development of multiple DPOs within a region could form a potential barrier for mobile species (such as seabirds, diadromous fish and cetaceans) or result in the diversion of shipping and fishing traffic routes, or concentration of vessel traffic in smaller areas. The North East region, for example, has the largest number of DPOs and, therefore, the scale of potential impacts from this region may be higher and opportunities to mitigate potential impacts may be comparatively more limited.

In line with the conclusions of the SA, HRA, SEA and SEIA, the draft Plan includes measures to mitigate potential impacts at various scales, including the requirement for further spatial planning within individual DPOs and limiting the scale of development under the draft Plan to 10 GW nationally.

The following sections summarise the most significant potential opportunities and constraints that developers will need to overcome in each DPO and region. This is not intended to be an exhaustive list of all potential impacts which could occur and project-level impacts will need to be identified via further project-level assessment, which will benefit from the further level of detail required.

The SA, SEA and HRA provide a list of suggested project-level mitigation measures, however, these will vary according to the scale, nature and location of the proposed development. The following types of potential impacts have been identified and assessed in the SEA, HRA and SEIA and will require further consideration (in addition to any specific potential impacts appropriate to the proposed development) at a project-level;

- Loss of/damage to marine and coastal habitats;
- Effects from pollution releases on species and habitats;
- Positive effects arising from habitat enhancement and exclusion of habitat damaging activity;
- Effects on subsea geology, sediments and coastal processes arising from changes in hydrodynamics and existing wave regimes;
- Issues relating to navigational safety, aviation and collision risk;
- Effects on marine and coastal recreation and access;
- Effects on landscape and coastal characters and visual receptors;

- Contribution to supporting a diverse and decarbonised energy sector;
- Effects from the introduction and spread of Invasive Non Native Species;
- Effects on residential amenity;
- Loss of/damage to historic environment features and their settings;
- Effects arising from noise, vibration, light, dust and shadow flicker;
- Effects on water quality; and
- Effects on ecological status.

Due to the level of uncertainty surrounding potential cable routes to shore, landfall locations and grid connection, a detailed assessment of specific cable routes to shore has not been included in the SA. The SEA, HRA, SEIA and draft RLG assume that any area inshore of a DPO could be utilised as a cable route and identifies areas of higher sensitivity for cable routes and landfall points. Developers are expected to take into consideration sensitive areas at a project-planning level and undertake early engagement with key stakeholders regarding survey requirements, cable routing and burial/protection methods.

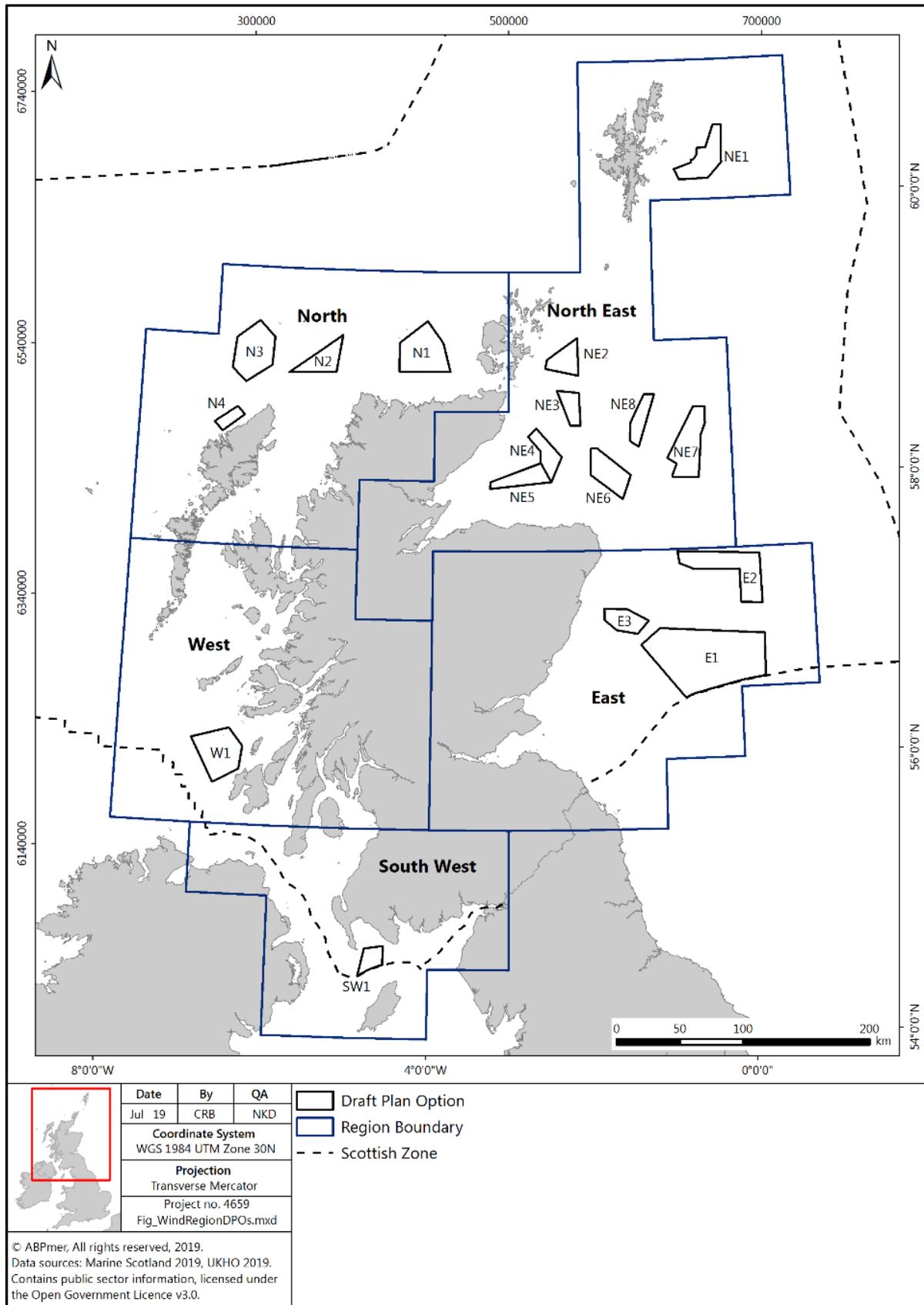


Figure 8 Sectoral Marine Plan Regions and DPOs

4.2 South West region

The South West region encompasses one DPO (SW1), located in the outer Solway Firth (as shown in Figure 9). The key risk factors to development within the South West region are:

- potential economic impacts from diverting a key commercial shipping route (and associated navigational risk);
- community engagement;
- potential visual impacts and landscape/seascape character impacts;
- risks to bird species, including collision and displacement risk, as well as potential impacts to birds on migration pathways;
- Potential impacts on commercial fishing;
- Potential impacts on marine mammal receptors; and
- Potential impacts on recreational angling.

At a regional scale, there are limited potential cumulative impacts associated with the DPOs, as there is only one DPO identified in the South West region. The SEA recognises the potential for cumulative effects on bird species with currently installed wind turbines at the Robin Rigg windfarm (174 MW, located further into the Solway Firth). Specifically, concerns around whooper swan migration pathways have previously been raised within the Solway. Cumulative impacts may also occur as a result of development outwith Scottish waters, which will need to be addressed with any project-level assessment.

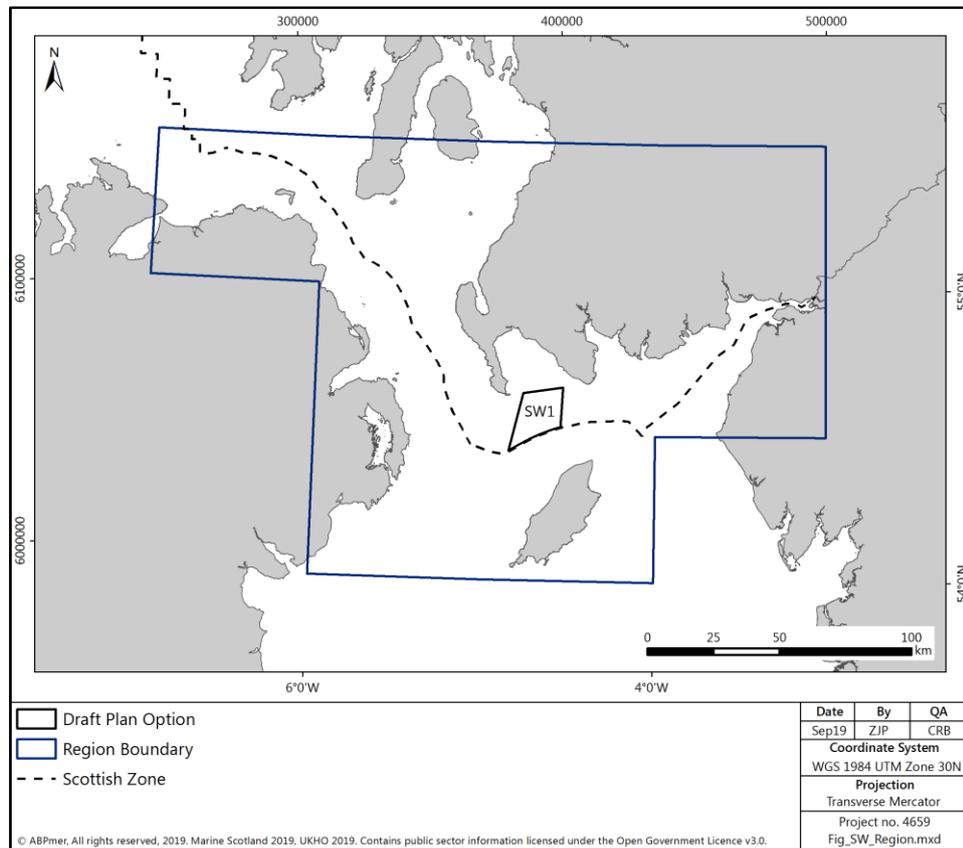


Figure 9 South West Region DPO

4.2.1 SW1

SW1 covers a total area of 292 km² and offers a potential maximum realistic development scenario of up to 1 GW of generating capacity (equating to 68% of the total area of the DPO). The majority of the DPO is in shallow water (< 60 m), with the exception of some small areas to the west.

Previous proposals for development within this region have been subject to opposition as a result of potential negative seascape, landscape and visual impacts, as well as negative socio-economic impacts relating to commercial fishing, tourism and recreation. Further, concerns regarding the potential level of socio-economic benefit which would accrue to the local community were also raised. It is therefore anticipated that additional and extensive engagement with local stakeholders, to explore the issues and identify possible solutions, would be required at the pre-application stage.

The SEIA recognises that there are potential significant cost impacts arising from potential offshore wind development on commercial shipping, however, there is potential for project-level mitigation to reduce or avoid these impacts.²⁹ Further consultation will be required with the Ministry of Defence (“MOD”) regarding potential impacts on radar and due to the proximity to the Luce Bay Danger Area.

4.2.2 Key actions for the South West Region

In order to progress development in the South West region, the following (non-exhaustive) key steps are likely to form part of the development process:

- consultation with the fishing community;
- additional pre-application consultation with stakeholders and communities in Dumfries and Galloway regarding potential socio-economic benefits arising from any development;
- consultation with stakeholders and communities regarding potential landscape and seascape impacts of any development;
- pre- and post-consent, and post-construction, bird monitoring;
- consultation with the Maritime and Coastguard Agency regarding navigational safety;
- benthic survey and subsequent spatial planning to avoid any key habitats and species identified;
- consultation with SNCBs regarding potential impacts on harbour porpoise from the North Channel SAC between October to March each year;³⁰ and
- consultation with MOD regarding Luce Bay Danger Area.

²⁹ For example, the application of Maritime and Coastguard Agency, *MGN543 Offshore Renewable Energy Installations Safety Response* (February 2016). Available at: <https://www.gov.uk/government/publications/mgn-543-mf-safety-of-navigation-offshore-renewable-energy-installations-oreis-uk-navigational-practice-safety-and-emergency-response>

³⁰ See further, Joint Nature Conservation Committee, *Harbour porpoise (Phocoena phocoena) Special Area of Conservation: North Channel, Conservation Objectives and Advice on Operations* (March 2019). Available at: http://archive.jncc.gov.uk/pdf/NorthChannel_ConsAdvice.pdf

4.3 West Region

The West region encompasses one draft plan option area (W1), located off the coast of Islay (as shown in Figure 10). The key risk factors to development within the West region are:

- potential visual impacts and landscape/seascape character impacts;;
- potential impacts on marine mammal receptors;
- risks to bird species, including collision risk and displacement, as well as potential impacts to birds on migratory pathways;
- potential impacts on benthic habitats and species;
- potential impacts on commercial fishing; and
- potential impacts on recreational angling.

Within the West region, there is the potential for tidal energy development in this region and three leases were previously awarded for tidal stream installation (including Isle of Islay, Sound of Islay and Connel), however, none of these sites are currently operational (although consents have been awarded for the Isle of Islay and Sound of Islay sites). These projects may need to be considered within any in-combination assessment. . The SEA recognises the potential for cumulative effects on migrating birds with currently installed wind turbines at the Robin Rigg windfarm and other west coast DPOs in the South West and North regions.

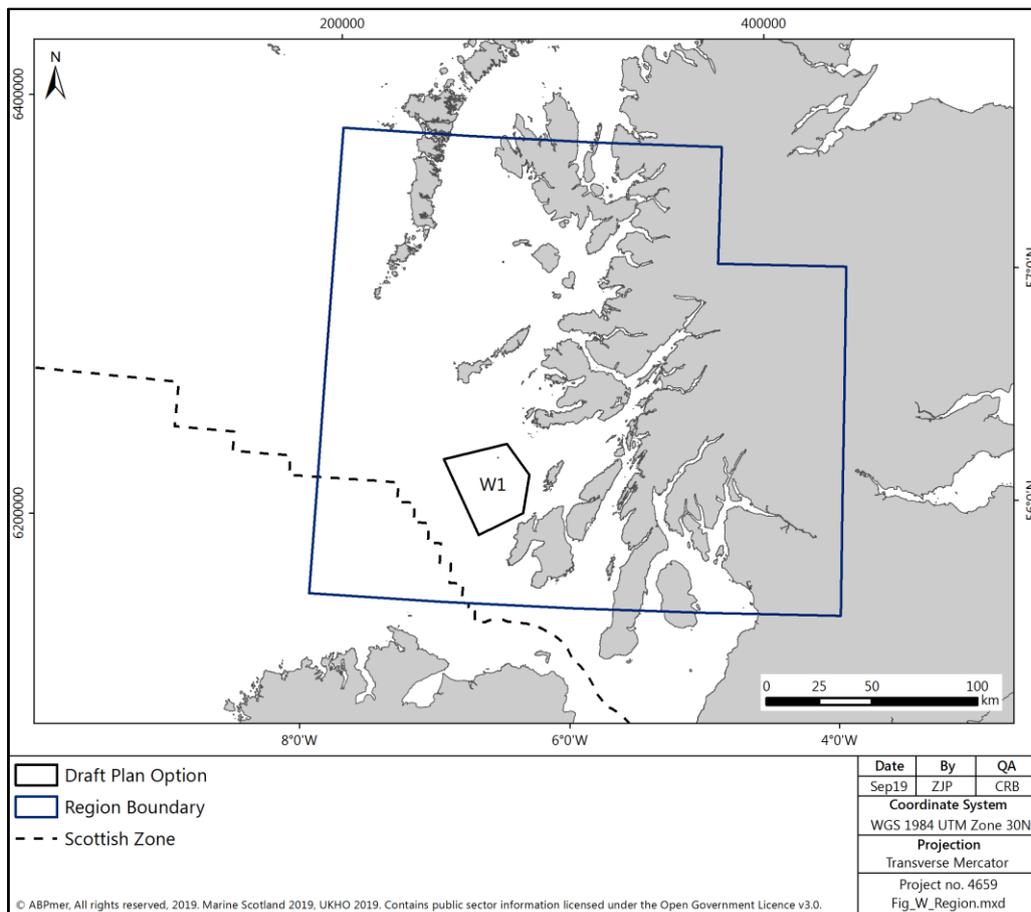


Figure 10 West Region DPO

4.3.1 W1

W1 covers a total area of 1107 km² and offers a potential maximum realistic deployment scenario of up to 2 GW of generating capacity (equating to 36% of the total area of the DPO). The majority of the DPO is in shallow water (< 60 m) with the exception of some small areas to the north-west.

The SEIA identifies generally lower socio-economic costs arising from potential offshore wind development within the DPO, with the most significant cost to the recreational angling sector, however, commercial fisheries may also be impacted by development.

There would be the potential for adverse visual impacts and impacts on seascape and landscape character, due to the proximity of the DPO to shore, particularly the south eastern part of the DPO, however, these impacts may be reduced or avoided via project-level mitigation measures. The western part of the DPO is located close to a shipping route and project-level mitigation measures may be required to address potential impacts on commercial shipping and navigational safety.

Consultation would be required with the Ministry of Defence (MOD) regarding potential offshore safeguarding concerns due to potential Royal Navy activities within W1.

Mitigation to reduce, avoid or offset impacts on marine mammals (including harbour porpoise, basking shark and seals) during construction activities would need to be considered at a project level, given the proximity of W1 to a number of designated and protected sites. Consideration would also need to be given to potential impacts on benthic features (deep sponge communities) located in the north west corner of W1, as well as potential impacts on migratory whooper swans.

4.3.2 Key actions for the West region

In order to progress development in the West region, the following (non-exhaustive) key steps are likely to form part of the development process:

- consultation with stakeholders in Argyll and Bute regarding landscape and seascape concerns;
- consultation with MOD regarding potential interaction with Royal Navy activities;
- pre- and post-consent, and post-construction, bird monitoring;
- benthic survey and spatial planning to avoid significant effects on benthic PMF receptors; and
- consultation with the fishing community.

4.4 North region

The North region encompasses four draft plan option areas (N1, N2, N3 and N4) (as shown in Figure 11). The key risk factors to development within the North region are:

- Potential adverse visual impacts and landscape/seascape character impacts;
- potential impacts on marine mammal receptors;
- risks to bird species, including collision risk and displacement, as well as potential impacts to birds on migratory pathways;
- potential impacts on benthic habitats and species;
- potential impacts on commercial fishing; and
- potential impacts on recreational angling.

Within the North region, there is one demonstration wind energy development which still holds a valid consent (Dounreay Tri). In addition, there are a number of tidal and wave devices have been deployed in the waters around Orkney as part of the European Marine Energy Centre (“EMEC”) and Phase 1 of the MeyGen tidal array is currently operational in the Pentland Firth. Development across multiple DPOs in this region may result in cumulative impacts on a range of receptors, including migrating birds, cetaceans and landscape/seascape

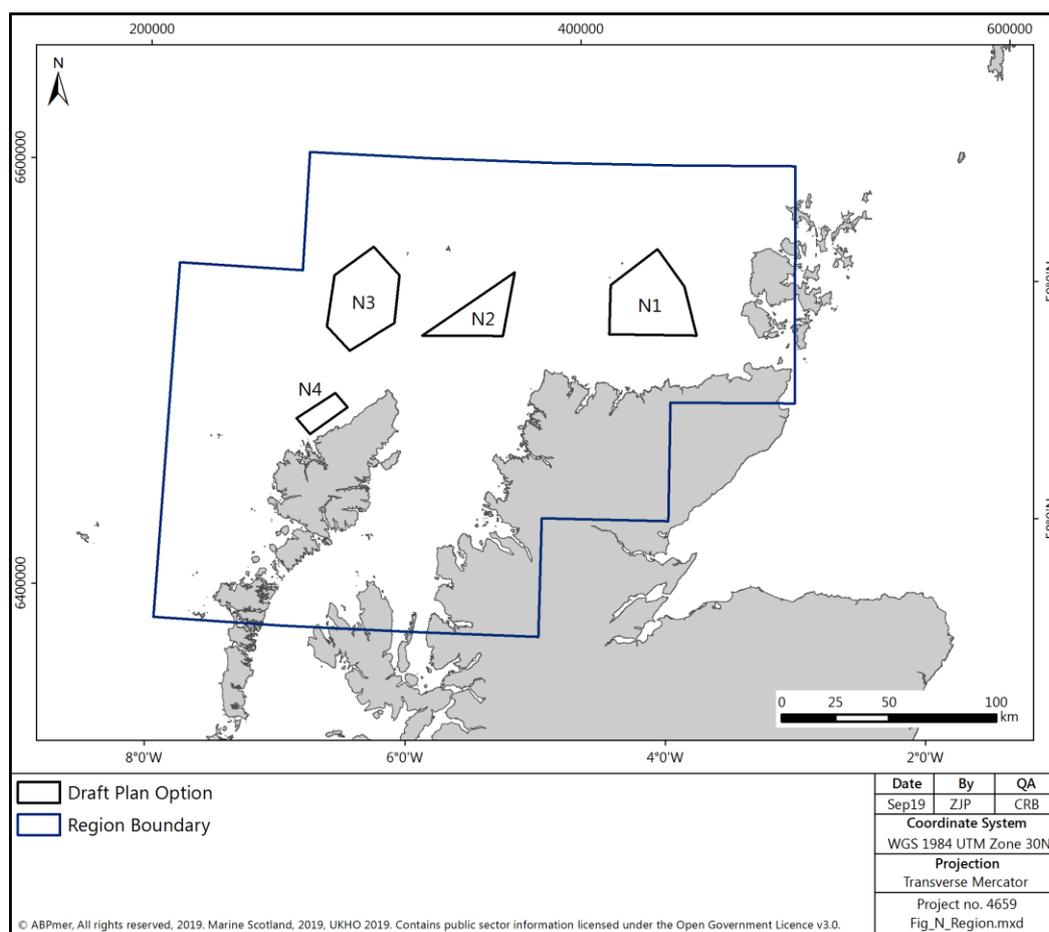


Figure 11 North Region DPOs

Development across multiple DPOs in this region will require careful consideration of cumulative impacts on bird species, particularly focussing on migratory species and flyaways, with increased turbine heights, as well as the consideration of collision risk, displacement and barrier effects to seabird populations. Migration pathways for migratory bird species transiting from the UK towards the Faroe Islands and Iceland intersect DPOs in this region and development within multiple DPOs could result in cumulative barrier effects, increased collision risk and increased energetic requirements for these birds.

Concurrent construction activities in this region could result in significant cumulative impacts on marine mammals, which would need to be considered and mitigated at a project and regional level.

In addition, if development were undertaken at both DPOs N3 and N4 there may be cumulative visual, seascape and landscape impacts (due to the proximity of these DPOs to the coastline and their ability to be seen from the same single viewpoints). These impacts would therefore need further consideration and mitigation at a project-level.

4.4.1 N1

N1 covers a total area of 1163 km² and offers a potential maximum realistic development scenario of up to 2 GW of generating capacity (equating to 34 % of the total area of the DPO). The water depth across the DPO varies, with areas of shallow water (< 60 m) and areas of deeper (60-100 m) water dispersed across the DPO.

The SEIA identifies potential impacts on the commercial shipping sector, which could be reduced or offset via project-level mitigation measures or spatial planning with the DPO. There is also the potential for significant cost impacts associated with the loss of fishing grounds in N1. Key gear types in N1 are demersal trawls and creels. It is recognised that of these the creels may not be displaced in the medium to long term.

The SEA identifies potential effects on bird populations including connectivity with nearby SPAs, such as Sule Skerry and Sule Stack SPA, as well as Orkney SPAs. As such, additional research, spatial planning and consideration of further mitigation at a project level may be required within N1 to avoid areas of key usage for bird species or reduce potential impacts.

4.4.2 N2

N2 covers a total area of 560 km² and offers a potential maximum realistic development of up to 2 GW of generating capacity (equating to 71% of the total area of the DPO). The water depth across the DPO is generally deeper (60-100 m) water with some areas of deep water (> 100 m) in the west of the DPO.

There is some potential for significant cost impacts associated with the loss of fishing grounds in N2, particularly in relation to demersal trawlers, which are likely to be excluded from the footprint of any offshore wind development.

Consultation would be required with the Ministry of Defence (MOD) regarding potential offshore safeguarding concerns due to Royal Navy activities within N2.

4.4.3 N3

N3 covers a total area of 1106 km² and offers a potential maximum realistic development scenario of up to 2 GW of generating capacity (equating to 36% of the total area of the DPO). The water depth across the DPO is generally deep (> 100 m) with some small areas of shallower water (< 60 m) in the northeast of the DPO.

The SEIA identifies potential significant cost impacts associated with the loss of fishing grounds in N3. Key gear types in N3 are midwater and demersal trawls which are likely to be excluded from the footprint of any offshore wind development.

Consultation would be required with the Ministry of Defence (MOD) regarding potential radar interference from turbines in N3.

The SEA identifies potential risks associated with bird species foraging in the northeast of the DPO from the North Rona and Sula Sgeir SPA and migrating bird species transiting towards the Faroe Islands and Iceland. To address these risks at a project level, appropriate pre-consent bird surveys, mitigation measure development and post-construction monitoring would be required.

4.4.4 N4

N4 covers a total area of 200 km² and offers a potential maximum realistic development scenario of up to 1 GW of generating capacity (equating to 100% of the total area of the DPO). The water depth across the DPO is shallow (< 60 m) throughout, with a small area of 60-100 m water depth in the southwest of the DPO.

The SEIA identifies potential cost impacts to recreational angling, tourism and commercial fishing sectors. The presence of N4 close inshore from the recommended deep water route around the Hebrides on a lee shore may also affect navigational safety and these impacts would need to be considered and mitigated at a project-level.

Impacts to the tourism sector are associated with potential visual, landscape and seascape issues, which similarly is the most significant risk identified within the SEA. N4 is located in very inshore waters, and therefore seascape, landscape and visual impacts will occur. Consideration of these impacts would require early consultation with local communities and stakeholders. Potential mitigation measures may be limited, however, consideration could be given to wind farm design and turbine selection, (i.e. the selection of smaller turbines to reduce visual impact).

Further to the potential landscape, seascape and visual impacts, the SEA identifies potential noise impacts to local populations, due to the DPO's close proximity to land, which will need management through early and comprehensive consultation with local stakeholders and communities.

4.4.5 *Key actions for the North region*

In order to progress development in the North region, the following (non-exhaustive) key steps are likely to form part of the development process. It is recognised that some steps will be more applicable to specific DPOs within the North region:

- consultation with local stakeholders regarding landscape and seascape concerns; and potential noise impacts on local populations;
- pre- and post-consent, and post-construction, bird monitoring;
- consultation with the MOD;
- consultation with the fishing community; and
- consultation with the Marine and Coastguard Agency.

4.5 North East Region

The North East region encompasses eight draft plan option areas (NE1, NE2, NE3, NE4, NE5, NE6, NE7 and NE8) (see Figure 12). The key risk factors to development within the North East region are:

- risks to bird species, including collision risk and displacement, as well as potential impacts to birds on migratory pathways;
- potential impacts on marine mammal receptors;
- potential impacts on benthic habitat and species;
- potential cost impacts and associated navigational risk from diverting key commercial shipping routes; and
- potential impacts on commercial fishing.

Within the North East region, there is already significant offshore wind development, principally in the Moray Firth, adjacent to DPOs NE4 and NE5, including;

- Beatrice offshore wind farm (588 MW, operational);
- Moray East offshore wind farm (950 MW. in construction); and
- Moray West offshore wind farm (850 MW, consented).

Additionally, there are current marine renewable energy developments in the Orkney and Shetland Islands (including wave and tidal devices deployed as part of EMEC and the Nova Innovation Shetland Tidal Array) which would need to be considered in any in-combination assessments.

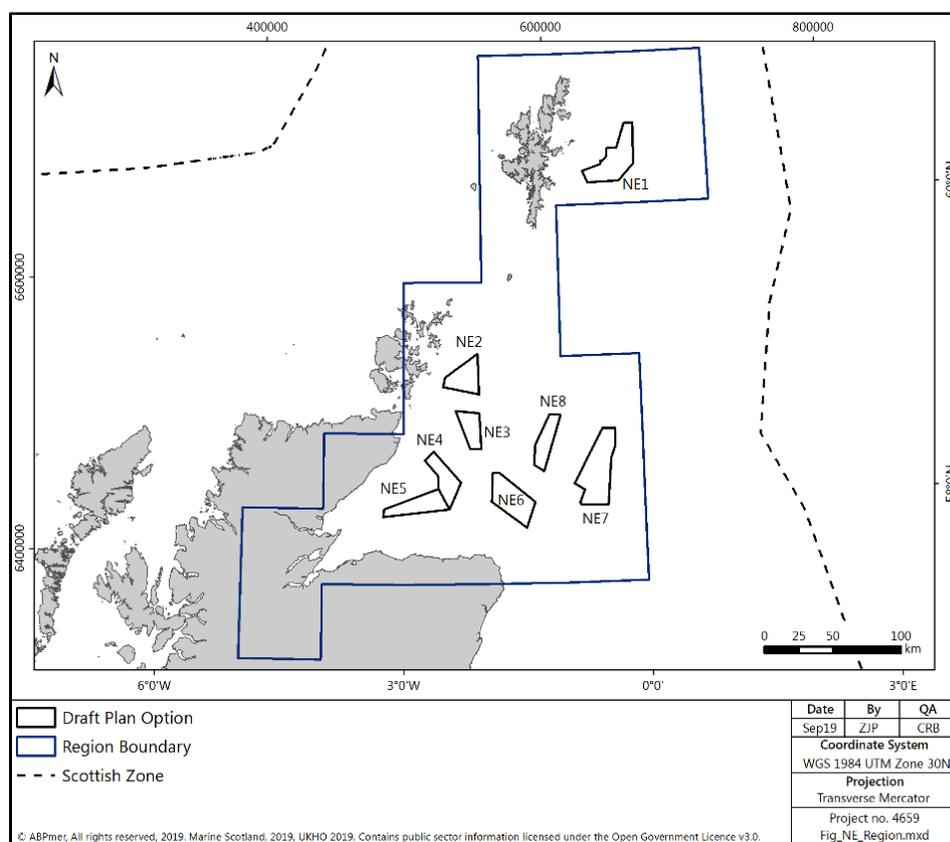


Figure 12 North East Region DPOs

Within the North East region, development across multiple DPOs could result in significant cumulative collision risk and displacement impacts on key seabird species. These concerns are detailed in full in the HRA Report and DPOs NE2, NE3, NE4, NE5 and NE6 are therefore classed as being 'DPOs subject to higher levels of ornithological constraint' and require that sufficient scientific evidence, which reduces the level of risk to an acceptable level, is made available. This will, therefore, delay the progression of licence and consent applications within these DPOs, until such time that further evidence, research and knowledge around mitigation is available to support decision-making in this region.

Potentially significant effects on marine mammals could occur during construction activities and further consideration of these impacts would be required at a project-level. In addition, potential cumulative impacts on navigation would need to be considered as a result of development of large areas within the DPOs and these impacts would need to be considered and addressed at a project-level.

There are some areas of overlap with existing oil and gas infrastructure, licensed blocks for oil and gas production and round awards for oil and gas exploration. Further, some DPOs are located inshore of existing and potential oil and gas production areas. There are some areas of overlap with areas awarded under the 29th and 30th oil and gas leasing rounds, however, it is anticipated that activity will have lapsed or concluded prior to offshore wind development commencing.

Where there are areas of spatial overlap, it is assumed that renewable energy development will not be permitted within a given corridor either side of the pipeline/platform (to facilitate maintenance activity on said structures, until such time as any structure(s) are decommissioned). It is also assumed that the cost of any required cable/pipeline crossings with existing infrastructure will be borne by the offshore wind developer.

Further consultation would be required with the oil and gas industry regarding potential interactions between these two sectors.

4.5.1 NE1

NE1 covers a total area of 776 km² and offers a potential maximum realistic development scenario of up to 2 GW of generating capacity (equating to 52% of the total area of the DPO). The water depth across the DPO is deep throughout (> 100 m).

The SEIA identifies some potential for significant cost impacts associated with the loss of fishing grounds in NE1. Key gear types in NE1 are demersal trawls and mechanical dredges which are likely to be excluded from the footprint of any offshore wind development. Areas within NE1 may be important fish spawning grounds, including for herring, cod and whiting and these risks would need to be addressed by project-level mitigation measures.

Consultation would be required with the MOD regarding potential radar interference from turbines in NE1.

The SEA identifies that NE1 lies adjacent to the Pobie Bank SAC, designated for benthic habitats, therefore, some examples of these benthic features could be present with the DPO. Benthic survey and spatial planning with the DPO would be required to mitigate any potential impacts, including potential impacts associated with sediment smothering or increased scour associated with turbine foundations.

4.5.2 NE2

NE2 covers a total area of 464 km² and offers a potential maximum realistic development scenario of up to 1 GW of generating capacity (equating to 43% of the total area of the DPO). The water depth across the DPO is between 60 m and 100 m throughout.

Key potential cost impacts arising from development in NE2 are to commercial shipping and power interconnector sectors (due to diversion of routes), which could be mitigated at a project-level.

The SEA and HRA identify that NE2 may be important as a foraging area for kittiwake and concerns regarding potential in-combination impacts has resulted in this DPO as being classified as being 'subject to higher levels of ornithological constraint'.

There is potential for areas within NE2 to be important fish spawning grounds, including for herring. Risks to spawning fish (related to piling noise) would need to be addressed via project-level mitigation.

4.5.3 NE3

NE3 covers a total area of 339 km² with a potential maximum realistic development of up to 1 GW of generating capacity (equating to 59% of the total area of the DPO). The water depth across the DPO is between 60 m and 100 m throughout.

The SEIA identifies costs to commercial shipping and fishing sectors, both of which are low when considered over the lifetime of a development and would need to be considered at a project-level. There is also potential, however, for development in NE3 to have consequences for navigational safety, due to proximity to key shipping routes, which will require consideration and management in project level assessment.

Consultation would be required with the MOD regarding potential radar interference from turbines in NE3.

The SEA and HRA identify that NE3 may be important as a foraging area for seabirds, and concerns regarding potential in-combination impacts has resulted in this DPO as being classified as being 'subject to higher levels of ornithological constraint'.

There is potential for areas within NE3 to be important fish spawning grounds, including for herring. Risks to spawning fish would need to be addressed by project-level mitigation.

4.5.4 NE4

NE4 covers a total area of 440 km² and offers a potential maximum realistic development of up to 1 GW of generating capacity (equating to 45% of the total area of the DPO). The water depth across the DPO is predominantly shallow (<60 m) throughout, with small areas of deeper water (60-100 m) in the south of the DPO.

The SEIA identifies generally lower socio-economic costs arising from potential offshore wind development within NE4. The only identified costs are to commercial shipping and fishing sectors, both of which are low when considered over the lifetime of a development. There is also potential for development in NE4 to have significant consequences for navigational safety, due to a large overlap with the key shipping route around the Scottish coastline. This will require significant consideration and management in project level assessment, as these effects are unlikely to be avoidable, due to the high density of traffic throughout the DPO.

Consultation will be required with the MOD regarding potential radar interference from turbines in NE4.

Similar to NE2 above, the SEA and HRA identify that NE4 is likely to be important as a foraging area for seabirds, including kittiwake from multiple SPA. As discussed above, concerns regarding potential in-combination impacts on key seabird species has resulted in this DPO as being classified as being 'subject to higher levels of ornithological constraint'.

4.5.5 NE5

NE5 covers a total area of 496 km² and offers a potential maximum realistic development scenario of up to 1 GW of generating capacity (equating to 40% of the total area of the DPO). The water depth across the DPO is shallow (< 60 m) in the northern half and deeper (60-100 m) in the southern half of the DPO.

The SEIA identifies generally low socio-economic costs arising from potential offshore wind development within NE5, with the exception of commercial shipping. However, the commercial shipping impacts are linked to the diversion of ships transiting the DPO, the majority of which are currently linked to development of the other offshore wind farms within the Moray Firth (principally Beatrice). It is therefore unlikely that the costs identified within the SEIA will be fully realised. Furthermore, where required, spatial planning at a project level can be used to provide appropriate shipping lanes through the DPO.

Consultation will be required with the MOD regarding potential radar interference from turbines in NE5.

The SEA and HRA identify that NE5 is important as a foraging area for seabirds, including kittiwake and concerns regarding potential in-combination impacts has

resulted in this DPO as being classified as being 'subject to higher levels of ornithological constraint'.

There is potential for areas within NE5 to be important scallop fishing area, and fish spawning grounds, including for herring, and these risks would need to be mitigated at a project-level.

4.5.6 NE6

NE6 covers a total area of 669 km² and offers potential maximum realistic development scenario of up to 2 GW of generating capacity (equating to 57% of the total area of the DPO). The water depth across the DPO is mostly 60 m to 100 m throughout with some areas of deeper water (> 100 m) in the south and west of the DPO.

The SEIA identifies potential socio-economic impacts on the commercial shipping sector, including lifeline ferry services. There a high density of shipping activity in this area, therefore, potential for mitigating costs may be limited. Similarly, the SEA identifies potential risks to navigational safety, arising from the potential concentration of traffic into fewer, narrower routes either around, or within the DPO. These impacts would need to be considered at a project-level.

Consultation would be required with the MOD regarding potential radar interference from turbines in NE6.

The SEA and HRA identify that NE6 may be important as a foraging area for seabirds, including kittiwake, and concerns regarding potential in-combination impacts has resulted in this DPO as being classified as being 'subject to higher levels of ornithological constraint'.

There is potential for areas within NE6 to be important fish spawning grounds, including for herring and sandeel. Risks to spawning fish would need to be considered at a project-level.

4.5.7 NE7

NE7 covers a total area of 1027 km² and offers a potential maximum realistic development scenario of up to 3 GW of generating capacity (equating to 58% of the total area of the DPO). The water depth across the DPO is generally deep throughout (> 100 m) with some areas of shallower depth (60 – 100 m).

The SEIA identifies potential for significant socio-economic cost impacts associated with the loss of fishing grounds arising from potential offshore wind farm development in NE7. Key gear types in NE7 are pelagic trawls and demersal trawls, which are likely to be excluded from the footprint of any offshore wind development.

Consultation would be required with the MOD regarding potential radar interference from turbines in NE7.

The SEA identifies that NE7 has the potential to affect bird species, although the distance offshore reduces the potential risk to foraging areas. There may, however, be species which transit through these offshore areas as part of migration routes, and therefore project level survey and consideration of potential mitigation measures would be required.

4.5.8 NE8

NE8 covers a total area of 401 km² and offers a potential maximum realistic development scenario of up to 1 GW of generating capacity (equating to 50% of the total area of the DPO). The water depth across the DPO is generally deeper throughout with a combination of areas of 60 m to 100 m and areas greater than 100 m water depth.

The SEIA identifies potential for significant socio-economic cost impacts associated with the loss of fishing grounds in NE8, which is the most intensively fished DPO under consideration. Key gear types in NE8 are midwater trawls which are likely to be excluded from the footprint of any offshore wind development.

Consultation would be required with the MOD regarding potential radar interference from turbines in NE8.

The SEA identifies that NE8 has the potential to affect bird species, although the distance offshore reduces the potential risk to foraging areas. There may, however, be species which transit through these offshore areas as part of migration routes, and therefore project level survey and consideration of potential mitigation will be required.

4.5.9 Key actions for the North East region

As discussed further in section 5.2.1, DPOs NE2, NE3, NE4, NE5 and NE6 have been classed as being subject to 'high levels of ornithological constraint'. It is proposed, therefore, that development will only be able to progress at DPOs NE2-6 where sufficient scientific evidence can be provided to reduce the risk to an acceptable level (unless it can be determined that there are imperative reasons of overriding public interest that require development to proceed).

In addition to the requirements regarding DPOs NE2-6, and in order to progress development in the North East region, the following (non-exhaustive) key steps are likely to form part of the development process. It is recognised that some steps will be more applicable to specific DPOs within the NE region:

- consultation with local stakeholders regarding landscape and seascape;
- pre- and post-consent, and post-construction, bird monitoring;
- benthic survey and subsequent spatial planning to avoid any key habitats identified;
- consultation with the fishing community;
- consultation with the MOD;
- consultation with the oil and gas industry; and
- consultation with the Marine and Coastguard Agency.

4.6 East region

The East region encompasses three draft plan option areas (E1, E2 and E3) (as shown in Figure 13). The key risk factors to development within the East region are:

- risks to bird species, including collision risk and displacement, as well as potential impacts to birds on migratory pathways
- potential impacts on marine mammal receptors;
- potential impacts on benthic habitat and species;
- potential cost impacts and associated navigational risk from diverting key commercial shipping routes; and
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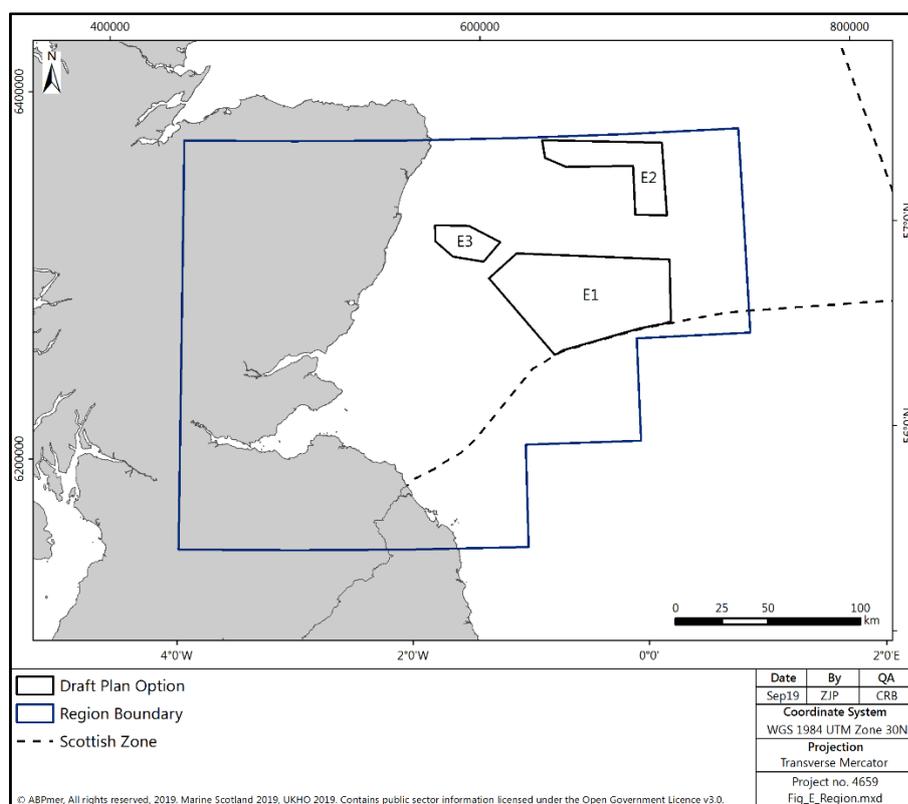


Figure 13 East Region DPOs

Within the East region, there is already significant offshore wind development, inshore of the proposed DPOs, including the following operational and consented projects:

- Forthwind Offshore Windfarm (29.9 MW consented);
- Levenmouth Demonstration Turbine (7 MW operational);
- European Offshore Wind Deployment Centre (93 MW operational);
- Inch Cape (700 MW consented);
- Kincardine Offshore Windfarm (50 MW consented, partially operational);
- Neart na Gaoithe (450 MW consented);
- Hywind Scotland Pilot Park (30 MW operational); and
- Seagreen Alpha and Bravo (1050 MW consented).

In addition, Seagreen Phases 2 (c. 1800 MW) and 3 (c. 800 MW) (also known as Seagreen Charlie and Delta) were previously scoped and these projects would need to be considered in any in-combination assessment.

Within the East region a key pathway of concern relates to effects on bird populations, due to potential in-combination impacts resulting from collision risk and displacement for key seabird species. These concerns are detailed in full in the HRA report and DPO E3 is therefore classed as being subject to 'high levels of ornithological constraint' (as set out at section 5.2.1). It is proposed, therefore, that development will only be able to progress at DPOs NE2-6 where sufficient scientific evidence can be provided to reduce the risk to an acceptable level (unless it can be determined that there are imperative reasons of overriding public interest that require development to proceed).

In addition, the HRA report identifies that there are concerns regarding the scale of the potential in-combination impacts on key seabird species from development at DPOs E1 and E2. Therefore, further regional survey effort and discussion will be required (as outlined in section 5.2.2) before development can progress in these DPOs.

Potentially significant effects on marine mammals could occur during construction activities, and further consideration of potential impacts and mitigation measures will be required at a project-level.

As per the North East region, there is the potential for some overlap and/or interaction between the DPOs and areas licensed and/or leased for oil and gas production or exploration. Further consultation would be required with the oil and gas industry regarding potential interactions.

4.6.1 E1

E1 covers a total area of 3816 km² and offers a potential maximum realistic development scenario of up to 3 GW of generating capacity (equating to 16% of the total area of the DPO). The water depth across the DPO is between 60 m and 100 m throughout.

The SEIA identifies minor socio-economic cost impacts arising from potential development in E1 to commercial shipping, fishing and power interconnector sectors, which would need to be considered at a project-level.

Consultation would be required with the MOD regarding potential radar interference from turbines in E1.

The SEA and HRA identifies that E1 may be important as a foraging area for kittiwake and razorbill and therefore, due to the concerns regarding potential in-combination impacts, further regional survey effort and consultation would be required.

There is potential for areas within E1 to be important fish spawning grounds, including for herring, cod, whiting, plaice and sandeel. Risks to spawning fish would need to be considered and mitigated at a project-level.

4.6.2 E2

E2 covers a total area of 1287 km² and offers a potential maximum realistic development of up to 2 GW of generating capacity (equating to 31% of the total area of the DPO). The water depth across the DPO is between 60 m and 100 m throughout.

The SEIA identifies minor socio-economic cost impacts arising from potential development in E2 to commercial shipping and fishing sectors.

Consultation would be required with the MOD regarding potential radar interference from turbines in E2.

The SEA and HRA identifies that E2 may be important as a foraging area for kittiwake and razorbill and therefore, due to the concerns regarding potential in-combination impacts, further regional survey effort and consultation would be required.

There is potential for areas within E2 to be important fish spawning grounds, including for herring, cod, whiting, plaice and sandeel. Risks to spawning fish would need to be considered and mitigated at a project level.

4.6.3 E3

E3 covers a total area of 474 km² and offers a potential maximum realistic development of up to 1 GW of generating capacity (equating to 42% of the total area of the DPO). The water depth across the DPO varies, incorporating area of shallow water (0-60 m), and deeper water (both 60 – 100 m and > 100 m).

The SEIA identifies minor socio-economic cost impacts for the commercial shipping, fishing and power interconnector sectors, which would need to be considered and mitigated at a project-level.

Consultation would be required with the MOD regarding potential radar interference from turbines in E3.

The SEA and HRA identify that E3 may be important as a foraging area for kittiwake from designated SPA sites, As discussed above, concerns regarding potential in-combination impacts on key seabird species has resulted in this DPO as being classified as being 'subject to higher levels of ornithological constraint'.

There is potential for areas within E3 to be important fish spawning grounds, including for herring, cod, whiting, plaice and sandeel. Risks to spawning fish would need to be mitigated at a project-level.

4.6.4 Key actions for the East region

As discussed in section 5.2.1, E3 has been classed as a DPO subject to 'high levels of ornithological constraint'. It is proposed, therefore, that development will only be able to progress at DPO E3 where sufficient scientific evidence can be provided to reduce the risk to an acceptable level (unless it can be determined that there are imperative reasons of overriding public interest that require development to proceed). As outlined at section 5.2.2, DPOs E1 and E2 would require the completion of further regional-level survey effort before development can proceed.

In addition to the requirements above and in order to progress development in the East region, the following (non-exhaustive) key steps are likely to form part of the development process. It is recognised that some steps will be more applicable to specific DPOs within the region:

- consultation with local stakeholders regarding landscape and seascape concerns;
- completion of regional-level ornithological surveys in DPOs E1 and E2;
- pre- and post-consent, and post-construction, bird monitoring;
- benthic survey and subsequent spatial planning to avoid any key habitats identified;
- consultation with the fishing community;
- consultation with the oil and gas industry; and
- consultation with the Marine and Coastguard Agency.

5. Plan adoption, implementation and Action Plan

Following the conclusion of the consultation period, the draft Plan may be refined further. If comments received during the consultation process require substantial changes to the draft Plan, further consultation may be required. The final Plan will be presented to Ministers for approval and will be published and adopted as soon as possible thereafter. Implementation of the Plan will require the successful integration of the following measures;

- Key considerations;
- Implementation of identified Plan-level mitigation measures; and
- The delivery of key actions.

5.1 Key considerations

These issues will need to be considered as the Plan progresses:

5.1.1 Community and stakeholder engagement

The successful implementation of the Plan will require the Scottish Government to continue with stakeholder engagement which has been undertaken to date to support the planning process. It is critical that communication with stakeholders continues beyond the adoption of the final Plan. This engagement will not be restricted to the membership Advisory Group and Governance Board (which will be formed post-adoption to facilitate the implementation of the Plan).

At a strategic level, the Scottish Government will undertake further and ongoing engagement with the shipping, defence, aviation, renewables and commercial fishing sectors. Developers will also be expected to engage in these discussions, particular around issues such as cumulative assessment, socio-economic impacts and commercial fisheries.

Developers will be required to undertake the necessary project-level community and stakeholder engagement. In particular, further engagement with local stakeholders will be required by developers in relation to DPOs located closer to shore (where seascape, landscape and visual impacts are likely to be of greater concern).

5.1.2 Project level assessment

Proposals for offshore wind development within the DPOs will still be subject to the standard leasing, licensing and consenting processes and the need for further project-level assessment. This may include environmental impact assessment in accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended) and the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended). Licensing decisions will be taken in accordance with the National Marine Plan³¹ and further

³¹ Marine (Scotland) Act 2010, s. 15

detail on these processes are contained in the Licensing and Consenting Manual.³² Project-level assessment will benefit from certainty regarding the type, location and scale of technology to be deployed within a particular DPO, which is currently not available at a Plan level. Project-level assessment will identify any appropriate mitigation measures to reduce, avoid or offset any potential adverse effects, or maximise positive effects

Discussions with stakeholders and regulatory bodies will identify the relevant best practice guidance to be adhered to (during all phases of development) and the methodologies and data to be utilised in any impact assessments.

In addition, the HRA identifies the legal requirement for individual projects to undergo HRA as a key mitigation measure (to avoid adverse effects on site integrity). Where likely significant effects on any European site(s) or European marine site(s) cannot be excluded, the competent authority will be required to undertake a project-level Appropriate Assessment.

The outputs of future project-level assessments will be used to support the iterative plan review for the Plan.

5.1.3 Cumulative and in-combination effects

Further assessment work will be required to identify and address cumulative and in-combination effects of offshore wind developments. For example, issues such as scheduling of work(s) within Scottish Waters will need to be carefully monitored. In addition, there is the need to ensure that project-level and strategic-level cumulative and in-combination effects are taken into account as part of project-level assessment and the iterative plan review process.

Developer-led work should contribute to addressing these issues in a suitable and effective manner and the Scottish Marine Renewables Energy Research (“ScotMER”) programme is also considering potential research work to address these issues.

5.1.4 Review – monitoring and research

As the deployment of offshore wind energy expands, further survey and monitoring data and research will become available, which will be used to inform industry best practice and standards, including assessment methodologies.

Developers are required to gather and submit monitoring data to the licensing authority as part of their marine licence and/or section 36 consent conditions. The structure and process for gathering such data is directed by the licensing authority, in consultation with the SNCBs and/or via the relevant Regional Advisory Group (“RAG”) and is also linked to the ScotMER programme. It is anticipated that these

³² Scottish Government, *Offshore wind, wave and tidal energy applications: consenting and licensing manual* (October 2018). Available at: <https://www.gov.scot/publications/marine-scotland-consenting-licensing-manual-offshore-wind-wave-tidal-energy-applications/>

research and monitoring outputs will inform the iterative plan review process and future assessment(s).

5.2 Plan level mitigation measures

The application of appropriate mitigation measures is key to the sustainable development of offshore wind. As outlined in Section 4 above, development within the identified DPOs may still result in potential negative environmental, social and economic impacts. The SA, therefore, recommends that mitigation measures are implemented to reduce or avoid these potential impacts. This includes requirement for further project-level assessment and application of project-level mitigation measures (see further, Section 4.7 of the Sustainability Appraisal), as well as the implementation of plan-level mitigation measures, which are applicable across all, or some, DPOs (dependent on the nature and scale of the impacts).

At a plan level, there are a number of measures which can be implemented to either reduce the effect associated with development under the Plan or offset any significant effects. The following plan level mitigation has been proposed for the draft Plan:

- Limiting the total scale of operational development under the Plan to 10 GW nationally;
- Limiting the total scale of operational development within each DPO to the maximum realistic development scenario set out in the SEA;
- Requiring spatial planning within individual DPOs, to reduce so far as is reasonably practicable effects on environmental receptors;
- The application of iterative plan review to ensure the Plan remains current and informed by up-to-date scientific understanding and knowledge;
- Requiring project-level EIA and HRA; and
- Collaboration between governmental bodies, Non-Governmental Organisations (“NGOs”) and industry on research issues to determine a consistent and comprehensive evidence baseline.

The HRA concludes that the Plan will not result in an adverse effect on the site integrity of any European site(s) or European marine site(s), provided that further project-level HRA and Appropriate Assessment is undertaken and the mitigation measures below are adhered to.

It should be noted that, the regional scenarios presented in the SA, have been used to provide an indication of potential impacts of all phases of development at a regional level, however, these regional scenarios will not be used to constrain potential levels of operational development within DPOs.

5.2.1 DPOs subject to high levels of ornithological constraint

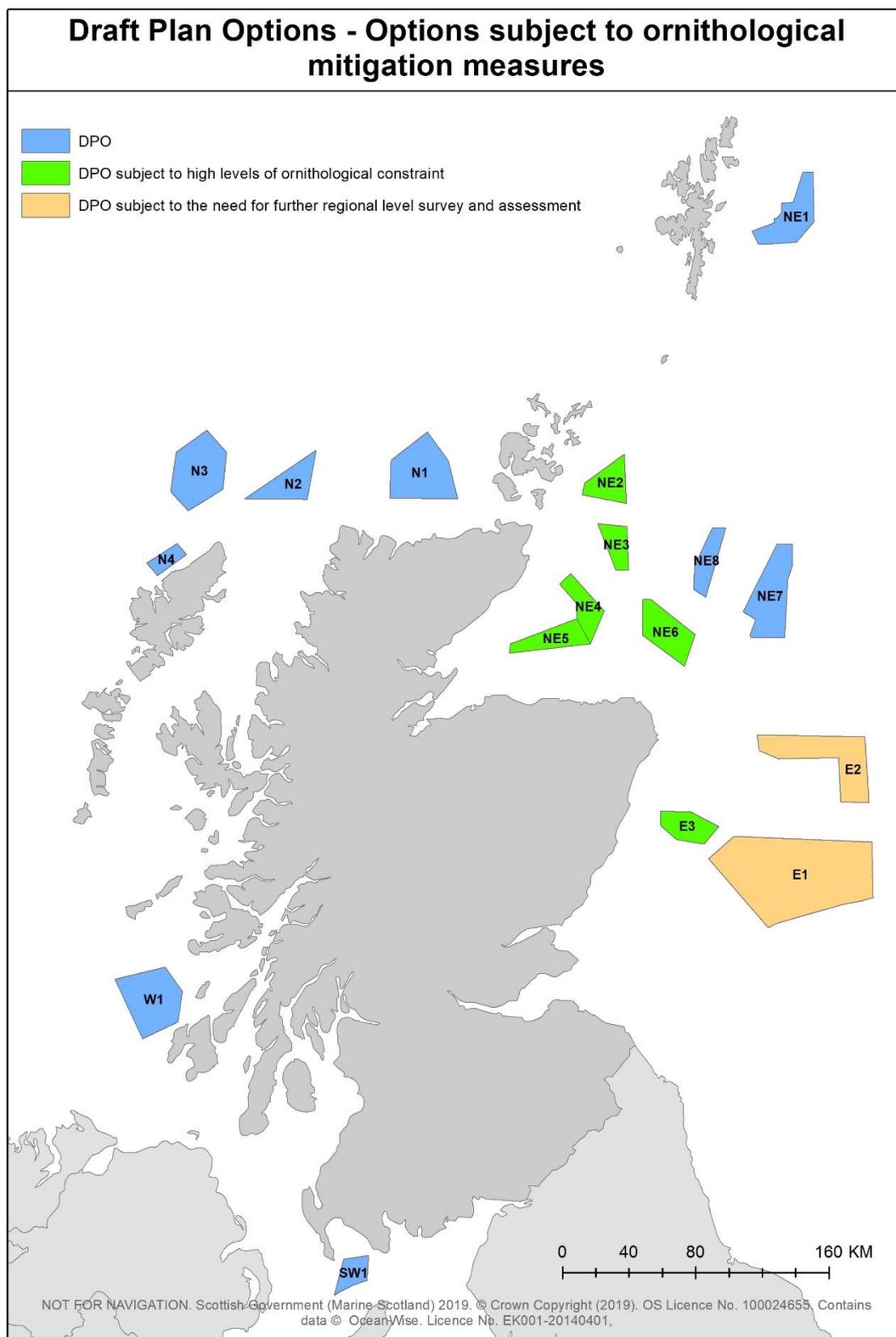


Figure 14 DPOs subject to high levels of ornithological constraint

The HRA has identified that development within DPOs NE2-6 and E3 (as shown in green in Figure 14) will, or could, result in an adverse effect on site integrity of European site(s) and/or European offshore marine site(s), due to the potential in-combination impacts on seabird qualifying interests from these sites. The HRA report concludes that development should not proceed at these DPOs, “until such time that enough evidence on the environmental capacity for seabird exists to reduce the risk to an acceptable level.” These DPOs have therefore been classified as being subject to ‘high levels of ornithological constraint’.

It is proposed, therefore, that development will only be able to progress at DPOs E3 and NE2-6 where sufficient scientific evidence can be provided to reduce the risk to an acceptable level (unless it can be determined that there are imperative reasons of overriding public interest that require development to proceed). This scientific evidence would thereby facilitate either;

- a) Revision to the Plan (via the iterative plan review process) which removes the requirement to produce sufficient evidence; or
- b) The granting of a licence or consent for the project, where it can be concluded by the competent authority that there would be no adverse effect on the integrity of any European site(s) or European marine site(s).

It is anticipated that it will take several years to gather and assess the necessary evidence regarding environmental carrying capacity in the East and North East regions. The conclusion of adverse effect on site integrity is based on the currently predicted (modelled) levels of development/activity and impact in these regions. In the event that further evidence demonstrates that these modelled impacts can be revised downwards (i.e. further carrying capacity exists in these regions), it may be possible to conclude at a Plan or project-level that development could proceed at certain, or all, of these DPOs, without resulting in an adverse effect on site integrity.

Developers may choose to pursue licence and consent applications for projects within these DPOs, but should note that pursuing projects in this region is at their own risk. It is likely that, given the current predicted levels of cumulative impacts in these regions and until such time as further evidence is provided which demonstrates carrying capacity in these regions, it will not be possible for the competent authority to conclude that development will not result in an adverse effect on the integrity of any European site(s) or European marine site(s). Where this conclusion is reached, no licence or consent can be granted, unless the Scottish Ministers allow a derogation to proceed under Article 6(4) of the European Habitats Directive.

Figure 15 provides an overview of the proposed processes.

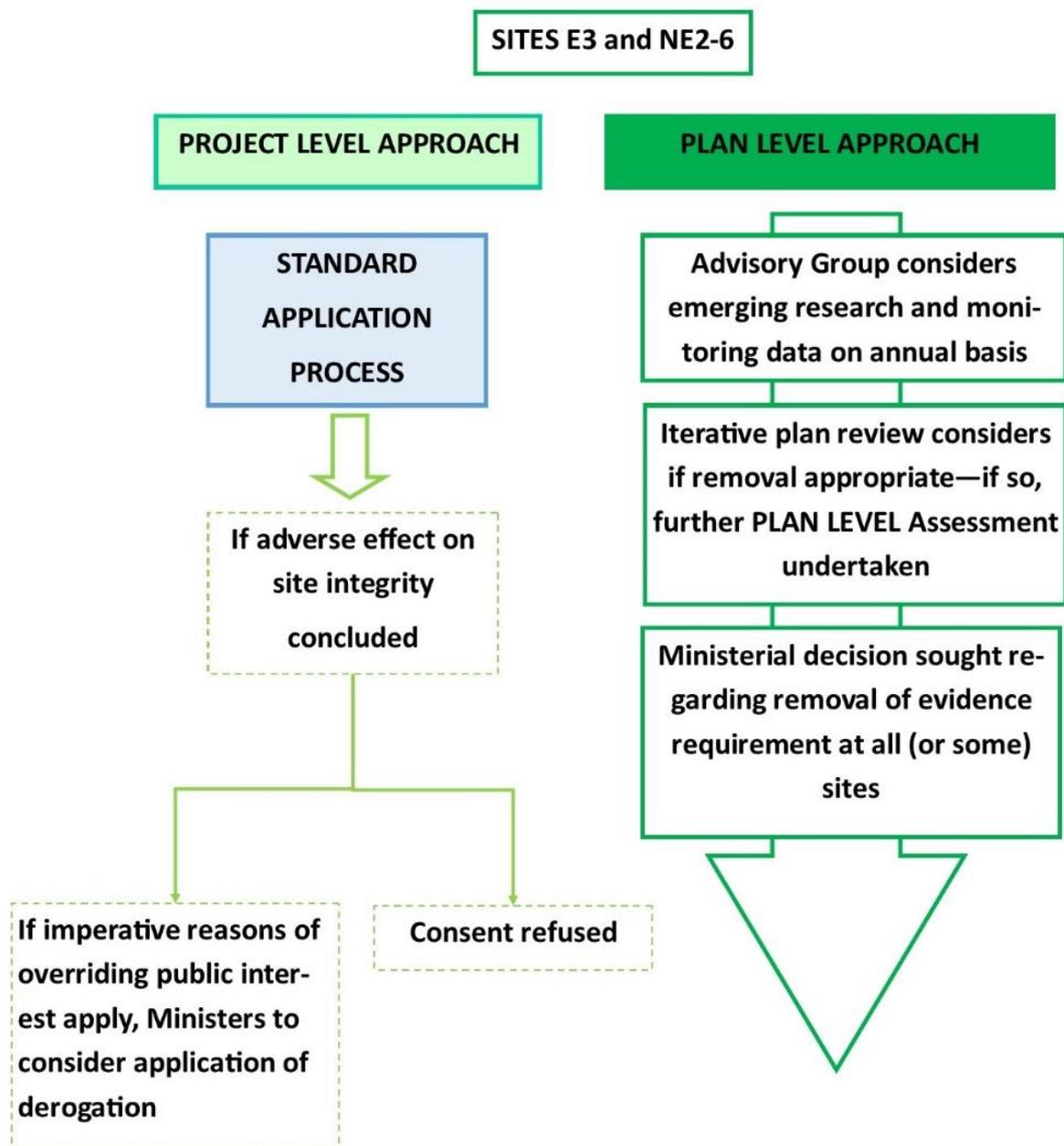


Figure 15 Application process - DPOs subject to higher levels ornithological constraint

5.2.2 DPOs subject to the need for further regional level survey and assessment (E1 and E2)

The HRA report advises that, for respect of DPOs E1 and E2, it cannot currently be concluded with certainty that the cumulative impacts of development on key seabird species would not have an adverse effect on site integrity. This is due to;

- Uncertainty regarding the potential scale of cumulative impacts in this region on seabird species (resulting from collision, displacement and barrier effects); and
- A lack of information regarding seabird densities and behaviours in the offshore region during the non-breeding season.

Further regional-level survey work and assessment is therefore required in order to identify and assess the potential impacts of construction, operational and decommissioning activities in DPOs E1 and E2. This regional survey work should cover the region(s) which will be likely impacted by the development and should not solely be limited to the DPO area or the offshore region in which the DPO is located.

This regional level survey and assessment work is required in addition to site-specific survey effort and analysis work required as part of the standard application and assessment process, as it addresses wider knowledge gaps relevant to the assessment of cumulative impacts and potential impacts during the non-breeding season. This regional level survey work and assessment should be carried out by, or on behalf of, the parties who are successful in obtaining Option Agreements for these DPOs.

This regional level survey and assessment activity could incorporate, for example, an initial study to identify foraging areas for key seabird species SPA populations and at-sea densities, using assessment tools, approaches and evidence likely to be available soon.³³ This study could then be supplemented by regional level survey effort, if required, which could incorporate elements such as aerial surveys or possibly seabird tagging work at key colonies. It is anticipated that the timeframes associated with this work will be less than those associated with the reconsideration of environmental carrying capacity outlined for DPOs NE2-6 and E3 above (as outlined above at 5.2.1).

Any developer which secures an Option Agreement for DPOs E1 and/or E2 should discuss and establish the parameters of the required survey work and the assessment of survey outputs with the Advisory Group. Developers may choose to pursue licence and consent applications for projects within these DPOs without completing this work, however, it should be noted that, given the level of scientific uncertainty regarding the level of potential cumulative impacts on key seabird species in this region, it is likely that the competent authority would be unable to conclude that development would not result in an adverse effect on the integrity of any European site(s) or European marine site(s). Where this conclusion is reached,

³³ Including, for example, a study updating foraging ranges for key seabird species (prepared as part of The Crown Estate Round 4 'Enabling Actions' programme) and the Marine Ecosystems Research Programme seabird at sea density study.

no licence or consent can be granted, unless the Scottish Ministers allow a derogation to proceed under Article 6(4) of the European Habitats Directive.

5.3 Iterative plan review

The final Plan will be subject to iterative plan review and management following adoption. The application of iterative plan management will ensure that;

- the Plan and the underpinning assessments are informed by the best available and most up-to-date scientific research and understanding, including outputs of project-level assessments and monitoring;
- the Plan accurately reflects spatial/regional context (i.e. level of construction, operational, and other activity within the region) and potential transboundary impacts; and
- that the Plan reflects the prevailing market conditions, technological advancements and regulatory environment (including connections to the national grid and coastal infrastructure).

To support the iterative review process, an Advisory Group will be established upon adoption of the final Plan, to consider the implications of emerging research, evidence and assessment methodologies (as outlined above). Further detail regarding the Advisory Group is provided at Section 0.

The iterative plan review process will be informed by project-level assessment and post-consent monitoring (for consented and operational wind farm projects). As monitoring data is collected, it will be used to validate the conclusions of project-level assessment and the Sustainability Appraisal. The iterative plan review process will also consider the level of current and planned activity within the DPOs, regionally and nationally and potential transboundary impacts.

In addition, it is anticipated that the Plan will be initially reviewed after two years, to consider emerging monitoring and research evidence, the wider policy, market and regulatory context and if required, to provide an updated spatial framework for any future CES leasing round. Each iteration of the Plan will be informed by any new and relevant information and research regarding the environmental, economic and social impacts of offshore wind and the effectiveness of any mitigation measures.

5.4 Advisory Group

As outlined above, an Advisory Group will be established upon adoption of the Plan, to;

- identify gaps in scientific knowledge and understanding, including the assessment of impacts at both a plan and project level, across a range of receptors, and the requirement for further research to address said gaps; and
- implement the iterative plan review process

Specifically, in relation to ornithology impacts;

- the level and type of scientific evidence which would be necessary to conclude whether or not the level of ornithological risk associated with development at DPOs E3 and NE2-6 falls within acceptable limits; and
- the scope and requirements for regional surveys and research related to DPOs E1 and E2.

The membership of the Advisory Group will primarily be drawn from the ScotMER Ornithology Receptor Group, which includes; regulators, SNCBs, government scientific advisors and academics. Where other receptors are the subject of discussion, members of the relevant ScotMER receptor group(s) will be invited to provide input.

It is expected that developers who are successful in obtaining Option Agreements for DPOs E1 and E2 should meet with the Advisory Group to discuss the parameters of the required regional-level research and survey work, prior to commencing any such work.

The Advisory Group will also discuss and consider whether the production of new, or revision of existing, strategic guidance is required (for example, updates to the 2014 Guidance on Strategic Assessment of Collision Risk of Scottish Offshore Windfarms to Migrating Seabirds) and how this work can be enabled.

6. Action Plan

As outlined above, there are a number of actions which will need to be completed by regulators, developers and other stakeholders to ensure the successful implementation of the Plan and facilitate further offshore wind development in our seas.

6.1 Further seabed leasing for Scottish Waters

The UK Offshore Wind Sector Deal highlights the importance of regular future seabed leasing rounds for offshore wind development, which in turn is tied to the commitments regarding future CfD rounds.

The final Plan will provide the spatial framework for the first cycle of seabed leasing by Crown Estate Scotland (ScotWind).

Option and Lease Agreements for commercial-scale offshore wind farm development under the first cycle of ScotWind leasing should only be made for areas of seabed identified in the final Plan (i.e. final Plan Options).

The final Plan will be reviewed prior to any future seabed leasing rounds via the iterative plan review, to ensure it is a contemporary and accurate document.

Developers should consider and address the conclusions of the final Plan and Sustainability Appraisal reports when preparing leasing, consent and licence applications, as appropriate.

6.2 Formation of the Advisory Group

Upon adoption of the final Plan, an Advisory Group will be formed to discuss the knowledge gaps and issues identified in the Sustainability Appraisal. The Advisory Group will meet, as required to discuss these issues and to undertake the iterative plan review process on an annual basis. The Advisory Group will also support the review process and provide advice to the Governance Board as requested.

Further information about the role of the Advisory Group is provided at section 5.2.

6.3 Governance of Plan Implementation

Governance of the Plan implementation will be provided by the Project Board formed during the planning process. It will continue in its governance role for the duration of the Plan, taking into consideration the recommendations provided by the Advisory Group and the wider regulatory and policy context. The Project Board will be renamed the “Governance Board” and will provide recommendations to Scottish Ministers regarding future revisions to the Plan and further assessment. Decision making power regarding the Plan will rest with the Scottish Ministers.

6.4 Developing the evidence base - linking to the ScotMER Research Programme and other strategic research programmes

The planning process has been informed by extensive technical planning work and stakeholder engagement. The evidence gathered has been used to inform the Opportunity and Constraint model and to inform the assessment in the SA and the baseline data presented in the draft RLG.

The planning process and SA have identified potential gaps in knowledge and data which may need to be addressed at plan and/or project-level. For example, via the completion of regional-level ornithology surveys and research in the East region or an update to the existing guidance regarding collision risk assessment for migratory bird species. In addition, scientific advisors have concluded that existing evidence relating to marine mammal abundance and distribution in the DPO regions needs to be collated and reviewed, to support future planning and assessment and identify any future priorities for research in these regions.

The Governance Board and Advisory Group will provide strategic oversight and advice on how to bridge any data or knowledge gaps identified in the assessments, or any emerging evidence gaps, in order to inform the iterative plan review process.

A number of strategic research programmes already exist and are undertaking work to address these gaps. Further, project-level assessment and monitoring may provide data and evidence which can address these gaps. As this evidence becomes available, it is anticipated that it will inform future plan and project-level assessment accordingly.

Following adoption of the final Plan it is anticipated that these strategic research programmes will seek to address the identified and emerging evidence gaps, in order to facilitate future offshore renewable energy in Scottish waters. A summary of these strategic research programmes follows and further information is also provided in the HRA report.

The ScotMER programme has been established to improve the understanding and assessment of the environmental and socio-economic implications of offshore renewable energy developments. Whilst our understanding of our marine ecosystem and the impacts of climate change is increasing, there are still knowledge gaps and data limitations that remain which result in uncertainty in current environmental baselines. ScotMER involves collaboration from industry, environmental NGOs, SNCBs and other interested stakeholders to identify and address high priority research gaps and builds on previous work undertaken by the Scottish Offshore Renewables Research Framework.³⁴

The following seven specialist ScotMER groups have been established to identify and prioritise evidence gaps which are detailed in 'evidence maps'. These maps are then used to inform the supporting research framework:

³⁴ Further information available here:
<https://www2.gov.scot/Topics/marine/marineenergy/mre/research>

- Ornithology;
- Marine mammals;
- Fish and fisheries;
- Diadromous fish;
- Benthic;
- Physical processes; and
- Socio-economics.

The evidence maps provide a clear indication of the priorities, shared across stakeholders, for each receptor and drive ongoing and future research programmes. These evidence maps are reviewed regularly to stay current with emerging research and policy priorities. Further, it facilitates a joint working approach with other UK and international groups with an interest in renewables and seeks to develop and maintain an understanding of the research landscape at Scottish, national and international levels.

As research which addresses these knowledge gaps progresses, it will provide evidence to inform further project-level assessment, as well providing invaluable input into the iterative plan review process.

Further detail regarding linkages to the ScotMER research programme and specific knowledge gaps relating to the potential effects of offshore wind farm developments on seabirds is provided in the HRA report.

Licence and consent conditions for individual projects require participation in the ScotMER programme (according to the impacts of the individual project) and the relevant Regional Advisory Group (“RAG”), to ensure that outcomes from project-specific monitoring effort informs strategic research work and can contribute to the iterative plan review process.

In addition to ScotMER, a number of other collaborative research initiatives exist, whose outputs will inform the iterative plan review process, including (but not limited to);

- Offshore Renewables Joint Industry Programme for Offshore Wind;
- The Marine Mammal Scientific Support Research Programme (managed by the Sea Mammal Research Unit);
- Joint Cetacean Protocol;
- The Co-Ordinated Agenda for Marine, Environmental and Rural Affairs Science; and
- The Scottish Marine Renewables Research Group.

6.5 Grid infrastructure and connectivity

Further examination of grid infrastructure and connectivity, in light of the potential additional capacity to be delivered by the Plan, will be required. Current infrastructure and available capacity for the short-term emphasises that whilst Scotland’s potential resource is significant, there are still obstacles that will need to be addressed in order to ensure that development in Scotland can be viable and

competitive, especially in more remote regions. Offshore Renewable Energy Catapult (“ORE Catapult”) are currently engaged in an examination of these grid infrastructure and connectivity issues and possible solutions, including the use of novel technologies and approaches. The results of this study will inform the iterative plan review process and any future revisions to the Plan and will be considered in any future assessments (as appropriate).

6.6 Relationship with the National Marine Plan and emerging Regional Marine Plans

The strategic aims of the Plan align with those of the National Marine Plan (2015), which addresses interactions between renewable energy development and other marine users. Development within any of the DPOs will need to take account of the National Marine Plan.

Draft Regional Locational Guidance has been prepared as part of the Plan process, to support further project-level spatial planning within DPOs and this guidance should be consulted by developers and regulators.³⁵

Regional Marine Plans will be prepared by Marine Planning Partnerships within the eleven Scottish Marine Regions (extending out to 12 nautical miles). Regional marine plans must be prepared in accordance with the National Marine Plan (unless relevant considerations indicate otherwise). Marine Planning Partnerships will be required to take into account this Plan, once adopted, when preparing their Regional Marine Plans.

Regional level analysis and assessment will address the gap between strategic and project level assessment and these regional-scale assessments will be considered by the Advisory Group and Governance Board as part of the iterative plan review process.

³⁵ *Draft Regional Locational Guidance* (2019). Available here: <http://www.gov.scot/ISBN/9781839603778>

7. Next Steps: consultation

7.1 Responding to this consultation

We are inviting responses to this consultation by midnight on **25 MARCH 2020**

Please respond to this consultation using the Scottish Government's consultation platform, Citizen Space. You can view and respond to this consultation online at:

<https://consult.gov.scot/marine-scotland/draft-sectoral-marine-plan-for-offshore-wind/>

You can save and return your responses while the consultation is still open. Please ensure that consultation responses are submitted before the closing date (25 March 2020).

If you are unable to respond online please complete the Respondent Information Form (see "Handling your Response" below) and send your completed Respondent Information Form and response to SectoralMarinePlanning@gov.scot

Or by post to:

Offshore Wind Sectoral Marine Plan Consultation
Marine Scotland Planning and Policy (GB North)
Scottish Government, Victoria Quay
Edinburgh
EH6 6QQ

7.2 Handling your response

If you respond via Citizen Space (<http://consult.scotland.gov.uk>) you will be directed to the Respondent Information Form. Please indicate how you wish your response to be handled and, in particular, whether you are happy for your response to be published.

If you are unable to respond via Citizen Space please complete and return the Respondent Information Form. If you ask for your response not to be published, we will regard it as confidential and we will treat it accordingly.

All respondents should be aware that the Scottish Government is subject to the provisions of the Freedom of Information (Scotland) Act 2002 and would, therefore, have to consider any request made to it under the Act for information relating to responses made to this consultation exercise.

7.3 Next steps in the process

Where respondents have given their permission for their response to be made public (and after we have confirmed that they contain no defamatory material) responses will be made available to the public at <http://consult.scotland.gov.uk>. If you use Citizen Space to respond, you will receive a copy of your response via e-mail.

Following the closing date, all responses will be analysed and considered along with any other available evidence to help us. Responses will be published where we have been given permission to do so. Following consideration of all comments received, a Post Adoption Statement will be prepared. The Post Adoption Statement will explain how the issues raised in the Sustainability Appraisal and consultation, have been addressed and will be published in conjunction with the final Plan.

If substantial changes are required to the Plan and Sustainability Appraisal as a result of the consultation, a further round of consultation may be required before the final Plan can be adopted.

7.4 Comments and complaints

If you have any comments about how this consultation exercise has been conducted, please send them to: SectoralMarinePlanning@gov.scot

7.5 Scottish Government consultation process

Consultation is an essential part of the policy-making process. It gives us an opportunity to consider your opinion and expertise on a proposed area of work.

You can find all our consultations online: <http://consult.scotland.gov.uk>. Each consultation details the issues under consideration, as well as a way for you to give us your views, either online, by e-mail or by post.

Consultation may involve seeking views in a number of different ways, such as public meetings, focus groups, or other online methods such as Dialogue (<http://www.ideas.gov.scot>).

Responses will be analysed and used as part of the decision making process, along with a range of other available information and evidence. We will publish a report of this analysis for every consultation. Depending on the nature of the consultation exercise the responses received may:

- Indicate the need for policy development or review;
- Inform the development of a particular policy;
- Help decisions to be made between alternative policy proposals; or
- Be used to finalise legislation before it is implemented.

While details of particular circumstances described in a response to a consultation exercise may usefully inform the policy process, consultation exercises cannot address individual concerns and comments, which should be directed to the relevant public body.

8. Questions for consultees

Draft Sectoral Marine Plan for Offshore Wind

1. Do you support the selection of the following draft Plan Options?

DPO	Strongly support	Somewhat support	Neither support nor oppose	Somewhat oppose	Strongly oppose
SW1					
W1					
N1					
N2					
N3					
N5					
NE1					
NE2					
NE3					
NE4					
NE5					
NE6					
NE7					
NE8					
E1					
E2					
E3					

Please enter any comments you may have in relation to this question below. Please ensure that you indicate which DPO(s) you are referring to:

Comments (optional)

2. Do you agree with the definition of commercial scale offshore wind farm projects as being projects being capable of generating over 100 MW of electricity? Do you think this level should be:

Lower (<100 MW)	As is (100 MW)	Higher (>100 MW)

If you have stated that the level should be lower or higher, please provide reasons below.

Comments (optional)

3. Do you agree that the scientific evidence presented demonstrates that DPOs NE2-6 and E3 are subject to high levels ornithological constraint and, therefore, the mitigation measures outlined in the draft Plan should be applied to these DPOs?

- Yes
- No
- Don't know

Please enter your comments in relation to this question below. Please ensure that you indicate which DPO(s) you are referring to

Comments (optional)

4. Do you agree that the scientific evidence presented demonstrates the requirements for further regional-level survey work within DPOs E1 and E2?

- Yes
- No
- Don't know

Please enter your comments in relation to this question below. Please ensure that you indicate which DPO(s) you are referring to

Comments (optional)

5. Do you have any comments regarding the proposed approach to iterative plan review?

Comments (optional)

6. Do you have any comments regarding the proposed formation and role of the Advisory Group?

Comments (optional)

7. If you have any further comments or points that you think should be taken into account in the plan, please provide those below

Comments (optional)

Sustainability Appraisal

These questions cover the Sustainability Appraisal for the draft Sectoral Marine Plan for Offshore Wind. This includes the Strategic Environmental Assessment Report, a Habitats Regulations Appraisal and a Social and Economic Impact Assessment.

8. Do you have any comments on the Strategic Environmental Assessment Environmental Report?

Comments (optional)

9. Do you have any comments on the Habitat Regulations Appraisal?

Comments (optional)

10. Do you have any comments on the Social and Economic Impact Assessment?

Comments (optional)

11. Do you have any comments on the draft Regional Locational Guidance?

Comments (optional)

12. Do you have any comments on the Sustainability Appraisal report?

Comments (optional)

Supporting partial assessments

13. Would you add or change anything in the partial Equality Impact Assessment?

- Yes
- No
- Don't know

Comments (optional)

14. Would you add or change anything in the partial Islands Communities Impact Assessment?

Yes

No

Don't know

Comments (optional)

Consultation on the draft Sectoral Marine Plan for Offshore Wind Energy

RESPONDENT INFORMATION FORM

Please Note this form **must** be completed and returned with your response.

To find out how we handle your personal data, please see our privacy policy:
<https://beta.gov.scot/privacy/>

Are you responding as an individual or an organisation?

Individual Organisation

Full name or organisation's name

Phone number

Address

Postcode

Email

The Scottish Government would like your permission to publish your consultation response. Please indicate your publishing preference:

- Publish response with name
 Publish response only (without name)
 Do not publish response

Information for organisations:

The option 'Publish response only (without name)' is available for individual respondents only. If this option is selected, the organisation name will still be published.

If you choose the option 'Do not publish response', your organisation name may still be listed as having responded to the consultation in, for example, the analysis report.

We will share your response internally with other Scottish Government policy teams who may be addressing the issues you discuss. They may wish to contact you again in the future, but we require your permission to do so. Are you content for Scottish Government to contact you again in relation to this consultation exercise?

Yes No



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