Morven South Offshore Wind Array Project

Environmental Impact Assessment Report

Volume 1, Chapter 1: Introduction

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1 Introduction

1.1 Background

1.1.1.1 Morven Offshore Wind Limited (MvOWL), a joint venture between JERA Nex bp Limited (JNBP), and EnBW Energie Baden-Württemberg AG (EnBW) (hereafter The Applicant), has been awarded a seabed option under the 2021/22 ScotWind Leasing Round for the Morven Option Lease Agreement Site (hereafter "Morven Site"), located wholly within Plan Option Area E1, identified in the Scottish Government's Sectoral Marine Plan for Offshore Wind Energy (the SMP) (Scottish Government, 2020).

1.1.1.2 The Applicant submitted the Scoping Report for the Morven Option Lease Agreement Site (hereafter "the Morven Site Scoping Report") to Marine Directorate – Licensing and Operations Team (MD-LOT) in July 2023, requesting a formal Scoping Opinion from Scottish Ministers (MD-LOT, 2023). The Applicant subsequently received the Morven Site Scoping Opinion from Scottish Ministers in November 2023 (MD-LOT, 2023a). Since receiving the Morven Site Scoping Opinion, the Applicant has continued to develop and evolve the Morven Site and made the decision to split the site into two distinct projects, the Morven North Offshore Wind Array Project (hereafter, "Morven North") and the Morven South Offshore Wind Array project (hereafter, "Morven South"). Further explanation of the splitting of the Morven Site can be found in paragraph 1.1.1.5.

1.1.1.3 Morven South is a proposed fixed-foundation offshore wind farm located approximately 86.1km from the Aberdeenshire coast (see Figure 1.1). The Morven South Boundary is illustrated within Figure 1.1 and covers an area of 347.7km^2.

1.1.1.4 The United Kingdom (UK) and Scottish Government's ambitions for offshore wind deployment are supported by the Offshore Transmission Network Review (OTNR). The Holistic Network Design (HND), under the OTNR's 'Pathway to 2030' workstream, recommends a network design for the connection of offshore generation assets (for a total capacity of 27.6GW) to the network. Building on this, the HND Follow-Up Exercise (FUE) refines and expands the original design to incorporate updated project data, stakeholder feedback, and evolving policy objectives, ensuring the network remains fit for purpose as offshore wind deployment accelerates.

1.1.1.5 As mentioned in 1.1.1.1 the Morven Site will be progressed as two separate developments: Morven North and Morven South. This separation is primarily driven by the requirement for flexibility due to ongoing uncertainty around grid connection dates for the two distinct grid connection Points of Connection (POC), the Morven Branxton Area Grid Connection Project (hereafter referred to as "MBAGC Project") in East Lothian and the Morven Hawthorn Pit Grid Connection Project (hereafter referred to as "MHPGC Project") in County Durham. To align with the respective grid connection arrangements, MHPGC in County Durham will be consented through a marine licence and a Development Consent Order (DCO), while MBAGC in East Lothian will proceed via both marine licence and planning application (under the Town and Country Planning (Scotland) Act 1997 for the onshore works) with a separate EIA Report to be produced for these applications. The potential cumulative effects of Morven South with these applications will be assessed within this Morven South EIA Report as far as possible and practicable.

1.1.1.6 For Morven South, the Applicant will seek the following consents, licences and permissions:

- a Section 36 consent under the Electricity Act 1989 for an offshore generating station in the Scottish offshore region (12nm to 200nm) where generating capacity exceeds 50MW;
- a marine licence under the Marine and Coastal Access Act 2009 (MCAA) (Scottish waters beyond 12nm) for the generating station (wind turbines, foundation and inter-array cables);
- a marine licence under the MCAA (Scottish waters beyond 12nm) for the OSP infrastructure (OSPs, OSP foundations and interconnector cables within the site boundary).

1.1.1.7 Hereafter, the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 and the Marine Works (Environmental Impact Assessment) Regulations 2007, which together set

out the relevant legal framework for environmental impact assessments of Morven South, are collectively referred to as the EIA Regulations.

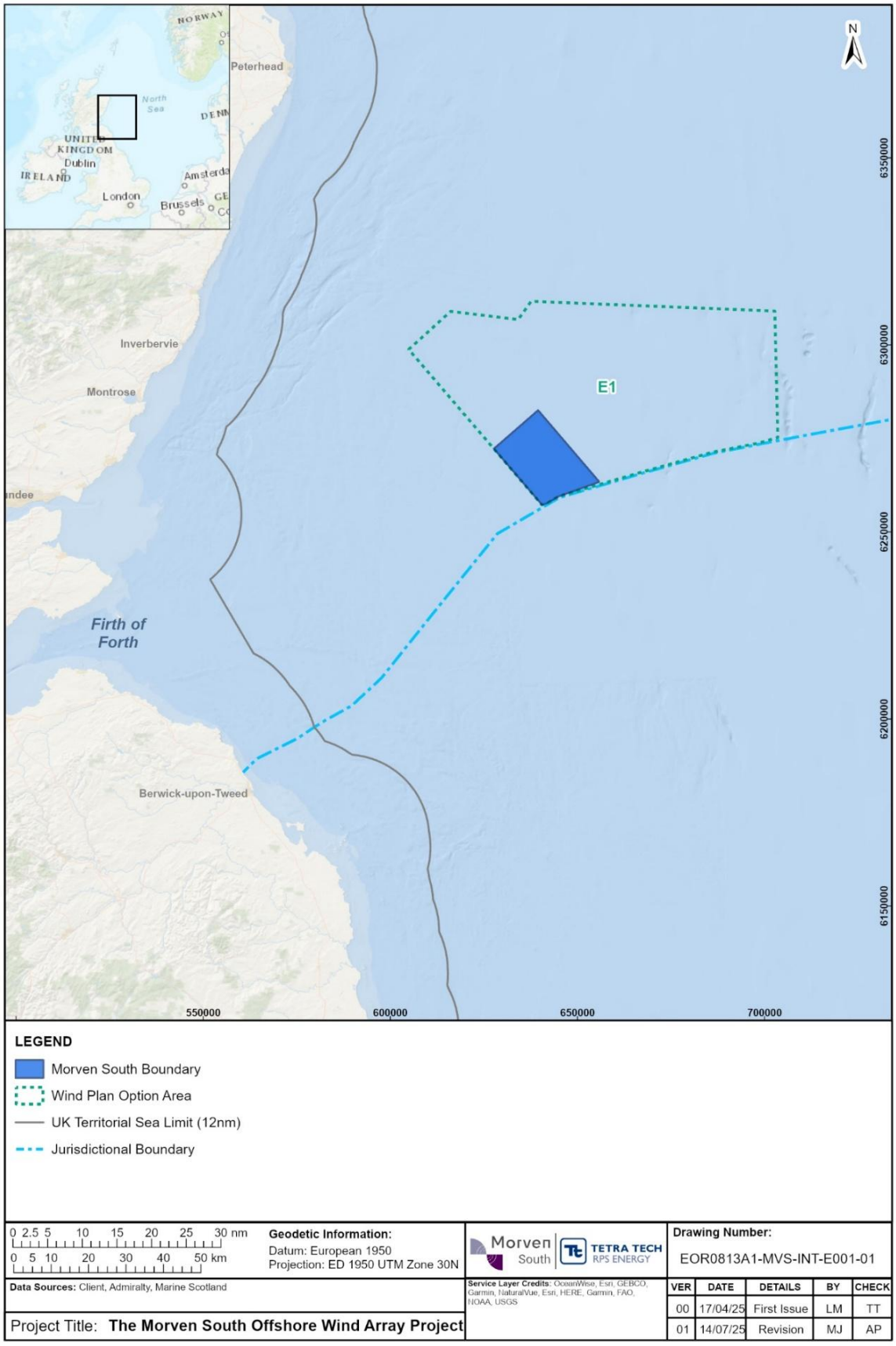

Figure 1.1: Location of the Morven South Boundary

1.1.1.8 The policy and legislative background to Morven South, which details the required consents and licenses, can be found in Volume 1, Chapter 2: Policy and Legislation and is not repeated in this chapter.

1.1.1.9 This chapter presents an introduction and overview of Morven South, outlining the required consents and licences for the proposed works, and summarising the contents of the Morven South EIA Report and accompanying application documents.

1.2 Project overview

1.2.1 ScotWind Leasing Round

1.2.1.1 Crown Estate Scotland (CES) launched the first ScotWind Leasing Round in June 2020. This leasing round gave developers the opportunity to apply for the right to build offshore wind farms in designated Plan Option (PO) areas in Scottish waters. The first ScotWind Leasing Round and the subsequent clearing process are projected to yield a total generating capacity in the order of 27.6GW, expected to be developed within the next ten years at the designated sites (CES, 2022).

1.2.1.2 The ScotWind leasing process itself commenced (application window) in 2021, when CES began formally receiving, evaluating, and awarding seabed option agreements to successful applicants. This phase transitioned the Leasing Round from a preparatory stage into a competitive and regulatory process, accelerating the development of offshore wind projects in Scottish waters. The progression of this process has played a key role in advancing Scotland's renewable energy ambitions and supporting its legally binding target of achieving net-zero greenhouse gas emissions by 2045 (CES, 2021). Applications to CES for new projects under the ScotWind leasing process were required to be sited within a PO area. The East region has three POs (E1, E2 and E3); Morven South is located within PO E1, which covers a total area of 3,744km^2 (CES, 2025) (as shown in Figure 1.1).

1.2.2 Morven South

1.2.2.1 Volume 1, Chapter 4: Site Selection and Consideration of Alternatives provides information on the site selection and consideration of alternatives for Morven South, with a detailed project description for Morven South included in Volume 1, Chapter 3: Project Description.

1.2.2.2 Key components of Morven South include:

- wind turbines, including foundations;
- inter-array cables;
- OSPs, including OSP foundations;
- scour protection;
- cable protection;
- interconnector cables.

1.2.2.3 Morven South will secure up to 95 fixed wind turbines. Up to five OSPs will be installed in the Morven South Boundary. The potential foundation types for the OSPs include piled jackets, suction bucket jackets, monopiles, or gravity-based structures. For wind turbines, the foundation options include piled jackets, suction bucket jackets, and monopiles. Subsea inter-array cables will connect the wind turbines to each other and to the OSPs, while interconnector cables will link the OSPs together.

1.2.2.4 The overall MW capacity for Morven South is not yet defined and will be a function of wind turbine model selection post consent. Depending on the number and capacity of the wind turbines installed within the Project Design Envelope (PDE) parameters defined for this assessment, the final installed generation capacity may vary, provided it remains within the assessed design parameters. Construction activities for Morven South are expected to last up to five years. The decommissioning process will likely follow a similar, reverse sequence. The Applicant is seeking consent for an operational phase of 35 years for Morven South.

1.2.2.5 Morven South has adopted the PDE approach, also known as the Rochdale Envelope approach. The PDE sets out the design assumptions and parameters from which the realistic Maximum Design Scenarios (MDSs) are drawn for Morven South. The envelope has been developed to provide necessary flexibility to enable later detailed design optimisation, while still ensuring a comprehensive assessment at an early stage in the development of Morven South, when key design details cannot yet be finalised. Adopting the PDE approach allows for the inclusion of a range of design parameters that reflect the current level of engineering definition, while ensuring that the Morven South EIA Report remains robust and adaptable to future refinements during the detailed design phase, post consent. This approach is explained in more details in Volume 1, Chapter 6: EIA Methodology.

1.3 Application for consent

1.3.1 The Applicant

1.3.1.1 The Applicant is a 50:50 joint venture between EnBW and JNBP.

1.3.1.2 With over 28,000 employees, EnBW is one of the largest energy companies in Germany and Europe. It supplies around 5.5 million customers with electricity and gas. As part of its transformation from a traditional energy company to a sustainable infrastructure group, the expansion of renewable energy sources and of the distribution and transmission grids for electricity, gas and hydrogen are cornerstones of EnBW's growth strategy and the focus of its investments.

1.3.1.3 Until 2030, EnBW plans gross investments of €40 billion. By then, around 80 percent of EnBW's generation portfolio is to consist of renewable energies, and the company aims to phase out coal by the end of 2028. These are key milestones on the road to the company's climate neutrality in 2035. EnBW has been planning, building and operating offshore wind farms in Germany and Europe for over 15 years.

1.3.1.4 EnBW invested early, built up expertise and secured a competitive position in the European offshore market as an integrated energy company. EnBW currently operates four offshore wind farms with around one gigawatt installed capacity and is constructing He Dreiht, Germany's largest and subsidy-free offshore wind farm, which will double EnBW’s offshore wind portfolio.

1.3.1.5 JERA Nex bp Limited is a purpose-built offshore wind company committed to unlocking the power of offshore wind by developing high-quality, competitive projects. A 50:50 joint venture between JERA Co. and bp, JERA Nex bp Limited is an end-to-end developer, owner and operator with more than fifteen years of experience in operating offshore wind projects.

1.3.1.6 Headquartered in London, with offices across Europe, Asia, and Australia, JNBP has a portfolio of operational and development projects across nine countries and draws on a rich heritage of pioneering offshore wind in Asia Pacific and the North Sea.

1.3.2 The lead offshore Environmental Impact Assessment consultant

1.3.2.1 Tetra Tech RPS Energy Limited (TTRPSEL) has been commissioned by the Applicant to lead the environmental assessments (EIA and Habitats Regulations Appraisal (HRA) for Morven South. TTRPSEL has a 20-year history of delivering renewables projects in the UK, including leading the offshore consenting and licence activities for a number of other ScotWind projects. The qualifications and experience of the competent experts involved is presented in Section 1.4.3.

1.3.2.2 The EIA team is comprised of a number of TTRPSEL in-house and subcontracted topic specialists, as set out in Table 1.3 below. TTRPSEL is a member and partner of the Institute of Sustainability and Environmental Professionals (ISEP) and is accredited to the ISEP Quality Mark scheme. The regular auditing under the Quality Mark scheme demonstrates TTRPSEL’ commitment to ensuring that our EIA work is undertaken to a high quality and in accordance with best practice.

1.3.3 Application documents and associated documentation

1.3.3.1 The consents, licences and permissions which will be sought by the Applicant relevant to Morven South include those listed in paragraph 1.1.1.6, with Table 1.1 providing a summary of the offshore application documentation. As mentioned in paragraph 1.1.1.1, the proposed offshore export cable corridor(s) and Morven South onshore infrastructure and, therefore, the onshore application documentation, will be assessed in a separate EIA Report.

1.3.3.2 More information on the consents, licences and permissions as well as their accompanying policy and legislation for the Morven South is presented in Volume 1, Chapter 2: Policy and Legislation.

Table 1.1: Morven South application documentation

Document	Leading author
Additional Application Information	
Section 36 Consent Application Letter	TTRPSEL
Section 36 Consent Application	TTRPSC
Marine licence Application: Generation Assets	TTRPSC
Marine licence Application: Transmission Assets (OSPs and interconnectors)	TTRPSC
Scoping Report for the Morven Option Lease Agreement Site	TTRPSEL
Planning Statement and Needs Case	Tetra Tech RPS Consulting (TTRPSC)/Humbeat/Pinsent Masons
Morven South EIA Report	
Non-Technical Summary (NTS)	TTRPSEL
Volume 1 – Morven South Introductory Chapters	TTRPSEL/the Applicant
Volume 2 - Morven South EIA Report: Topic Assessment Chapters	TTRPSEL/Anatec/BiGGAR/Niras/ Sagentia /TTRPSC/NiMa
Volume 3 – Morven South EIA Report Annexes	TTRPSEL/Anatec/BiGGAR/Niras/ Sagentia/Jasco/TTRPSC/BMM/WSP/SMRU
Volume 4 - Management and Mitigation Plans: • Environmental Management Plan (EMP) (Version 1); • Marine Pollution Contingency Plan (MPCP) (Version 1); • Invasive Non-native Species Management Plan (INNSMP) (Version 1); • Scour Protection Management Plan (SPMP) (Version 1); • Marine Mammal Mitigation Protocol (MMMP) (Version 1); • Fisheries Mitigation Monitoring Communication Plan (FMMCP) (Version 1); • Lighting and Marking Plan (LMP) (Version 1); • Navigational Safety Plan and Vessel Management Plan (NSVMP) (Version 1); • Written Scheme of Investigation (WSI) and Protocol for Archaeological Discoveries (PAD) (Version 1).	TTRPSEL/NiMa/Anatec/The Applicant

Document	Leading author
Morven South: HRA	
Volume 1 - Morven Option Lease Agreement Site: HRA Stage 1 Screening Report	TTRPSEL
Volume 2 – Morven South Report to inform Appropriate Assessment (RIAA): • Part 1: Introduction; • Part 2: Special Areas of Conservation (SACs) Assessments; • Part 3: Special Protection Areas (SPAs) and Ramsar Site Assessments; • RIAA: Apportioning; • RIAA: Population Viability Analysis.	TTRPSEL/Niras
Volume 3 – Morven South Derogation Case: • Derogation Case; • Compensation and Evidence Plan; • Annex 2.1: Compensation Stakeholder Consultation; • Annex 2.2: Long list of species and compensation options; • Annex 2.3: Assessment of Offshore Islands Potentially Suitable for Predator Eradications Report; • Annex 2.4: Predator Eradication Modelling Report; • Annex 2.5: Island Screening Report; • Annex 2.6: Pre-eradication Field Study Report; Outline Compensation Implementation, Monitoring and Adaptive Management Plan; • Outline Compensation Implementation, Monitoring and Adaptive Management Plan; • Compensation: EIA of Compensation Measures; • Compensation: HRA of Compensation Measures.	The Applicant/TTRPSEL /HAR/SLR/Pinsent Masons

1.4 Environmental Impact Assessment

1.4.1 Purpose of the Morven South Environmental Impact Assessment Report

1.4.1.1 The Applicant has prepared the Morven South EIA Report to comply with the requirements of the EIA Regulations. This report supports the consent applications referenced in paragraph 1.1.1.6.

1.4.1.2 The Morven South EIA Report includes a description of Morven South and presents the environmental information gathered to assess the likely significant environmental effects of Morven South on the receiving environment.

1.4.1.3 The Morven South EIA Report specifically:

- provides detailed technical information to support both statutory and non-statutory consultees in gaining a comprehensive understanding of Morven South, including design, location, potential environmental impacts, and proposed mitigation measures, to inform stakeholder consultation;
- presents current environmental baseline data, gathered through desktop studies, site specific surveys, and consultations;
- explains the EIA methodology used in the assessments;

- describes the potential environmental impacts arising from Morven South, when considering the baseline information and gathered data, and the analysis and impact assessments completed as part of the EIA process;
- carries out an assessment of Likely Significant Effect (LSE[1]) and considers mitigating actions for these;
- outlines the level of confidence in the data used in the assessment along with any data limitations, including where any data gaps or shortfalls exist;
- recommends embedded mitigation measures designed to avoid, reduce, or offset significant adverse environmental effects, and, where relevant, proposes monitoring strategies to validate the findings. Where additional mitigation is proposed, the residual significance of effects is also presented;
- justifies the site selection and outlines the reasonable alternatives considered for the Morven South project.

1.4.2 Scope of the assessment

1.4.2.1 In July 2023, the Applicant submitted the Morven Site Scoping Report to MD-LOT, requesting a formal Scoping Opinion from the Scottish Ministers (MD-LOT, 2023). The corresponding Scoping Opinion (the 'Morven Site Scoping Opinion') was received in November 2023 (MD-LOT, 2023a).

1.4.2.2 The guidance provided in the Morven Site Scoping Opinion, along with feedback from pre-scoping workshops and post scoping engagement held with stakeholders, helped the Applicant define the proposed scope and approach for the Morven South EIA Report. Consequently, the Morven South EIA Report focuses on the following topic areas:

- physical processes;
- benthic subtidal ecology;
- fish and shellfish ecology;
- marine mammals;
- offshore ornithology;
- commercial fisheries;
- shipping and navigation;
- aviation (military and civil);
- marine archaeology;
- other sea users;
- major accidents and disasters;
- climate change;
- socio-economics;
- human health;
- inter-related and ecosystem effects.

1.4.2.3 An overview of the consultations carried out by the Applicant with both statutory and non-statutory stakeholders during the pre-scoping, scoping, and EIA phases are provided in Volume 1, Chapter 5: Consultation. Detail of all consultation activities undertaken is presented in Volume 4, Annex 5.1: Consultation. In addition, each topic-specific chapter contains a summary of the relevant consultations undertaken for that subject area.

1.4.3 Structure of the Morven South Environmental Impact Assessment Report and consultant

1.4.3.1 The Morven South EIA Report is divided into four volumes:

- Volume 1 – Morven South EIA Report: Introductory Chapters;
- Volume 2 – Morven South EIA Report: Topic Assessment Chapters;
- Volume 3 – Morven South EIA Report Annexes;
- Volume 4 – Management and Mitigation Plans.

1.4.3.2 Table 1.2 outlines the contents of each volume of the Morven South EIA Report and lists the organizations that contributed to them.

1.4.3.3 To ensure a robust and well-informed application, the Applicant has engaged expert teams for each technical topic. Table 1.3 details the qualifications and experience of the competent experts involved in the Morven South EIA Report.

Table 1.2: Morven South Environmental Impact Assessment Report structure and content

Volume	Chapter number	Chapter	Author
1 - Introductory Chapters	-	Non-technical Summary	TTRPSEL
	-	Overarching Glossary, Units and Acronyms	TTRPSEL
	1	Introduction	TTRPSEL
	2	Policy and Legislation	TTRPSC
	3	Project Description	TTRPSEL
	4	Site Selection and Consideration of Alternatives	The Applicant/TTRPSEL
	5	Consultation	TTRPSEL
	6	Environmental Impact Assessment Methodology	TTRPSEL
2 – Topic Assessment Chapters	7	Physical Processes	TTRPSC
	8	Benthic Subtidal Ecology	TTRPSEL
	9	Fish and Shellfish Ecology	TTRPSEL
	10	Marine Mammals	TTRPSEL
	11	Offshore Ornithology	Niras
	12	Commercial Fisheries	NiMa
	13	Shipping and Navigation	Anatec
	14	Marine Archaeology	TTRPSEL
	15	Aviation (Military and Civil)	Sagentia
	16	Other Sea Users and Communications	TTRPSEL
	17	Socio-economics	BiGGAR
	18	Climate Change	TTRPSC
	19	Major Accidents and Disasters	TTRPSEL
	20	Human Health	TTRPSC
	21	Inter-related and Ecosystem Effects	TTRPSEL

Volume	Chapter number	Chapter	Author
3 – EIA Report Annexes	5.1	Consultation	TTRPSEL
	5.2	Offshore Ornithology Impact Estimates using Natural England Approaches	Niras
	5.3	Community Engagement Statement	WSP
	6.1	Cumulative Effects Screening	TTRPSEL
	6.2	Transboundary Effects Screening	TTRPSEL
	6.3	EIA Commitments Register	TTRPSEL
	7.1	Physical Processes Shared Technical Report	TTRPSC
	8.1	Benthic Subtidal Ecology Shared Technical Report	TTRPSEL
	9.1	Fish and Shellfish Ecology Shared Technical Report	TTRPSEL
	10.1	Marine Mammals Shared Baseline Technical Report	TTRPSEL
	10.2	Underwater Sound Shared Technical Report	JASCO
	10.3	Marine Mammals Shared Digital Aerial Survey Report	TTRPSEL
	10.4	Marine Mammals Shared Seal Telemetry and Haul-out Data Study Technical Report	SMRU
	10.5	Marine Mammals Shared Interim Population Consequences of Disturbance (iPCoD) Modelling Report	TTRPSEL
	11.1	Offshore Ornithology Baseline Characterisation Technical Report	Niras
	11.2	Offshore Ornithology Collision Risk Modelling Report	Niras
	11.3	Offshore Ornithology Collision Risk Modelling Report: Migratory	Niras
	11.4	Offshore Ornithology Displacement Modelling Report (Matrix Approach)	Niras
	11.5	Offshore Ornithology Displacement Modelling Report (SeabORD)	Niras
	11.6	Offshore Ornithology Regional Population Viability Analysis	Niras
	12.1	Commercial Fisheries Shared Technical Report	BMM
	13.1	Shipping and Navigation Shared Navigational Risk Assessment	Anatec
	13.2	East Region Developers Group Cumulative Baseline for Shipping and Navigation	The Applicant/Anatec
	14.1	Marine Archaeology Shared Technical Report	TTRPSEL
	15.1	Aviation (Military and Civil): Shared Technical Report	Sagentia
	15.2	Aviation (Military and Civil): Shared IFP Assessment	Sagentia

Volume	Chapter number	Chapter	Author
	17.1	Socio-Economics Shared Economic Technical Report	BiGGAR
	18.1	Shared Climate Change Risk Assessment	TTRPSC
	18.2	Climate Change: Shared Greenhouse Gases Technical Report	TTRPSC
	18.3	In-combination Climate Change Impact (ICCI) Assessment	TTRPSEL
4 – Management and Mitigation Plans	1	Environmental Management Plan (EMP) (Version 1)	TTRPSEL
	1.1	Marine Pollution Contingency Plan (MPCP) (Version 1)	TTRPSEL
	1.2	Invasive Non-native Species Management Plan (INNSMP) (Version 1)	TTRPSEL
	1.3	Scour Protection Management Plan (SPMP) (Version 1)	TTRPSEL
	2	Marine Mammal Mitigation Protocol (MMMP) (Version 1)	TTRPSEL
	3	Fisheries Mitigation Monitoring Communication Plan (FMMCP) (Version 1)	NiMa
	4	Lighting and Marking Plan (LMP) (Version 1)	Anatec
	5	Navigation Safety Plan and Vessel Management Plan (NSPVMP) (Version 1)	Anatec
	6	Written Scheme of Investigation (WSI) and Protocol for Archaeological Discoveries (PAD) (Version 1)	TTRPSEL

Table 1.3: Qualifications and experience of the Morven South Environmental Impact Assessment Report competent experts

Expert	Qualifications	Relevant experience
TTRPSEL: EIA Project Director	BSc, Postgraduate Certificate in Education (PGCE)	The Project Director has over 20 years of experience in the environmental sector, particularly in supporting major offshore wind farms in the UK. Their project experience includes serving as a senior marine mammal advisor for the Inch Cape project, marine mammal Project Manager and HRA lead for the Rhiannon project, offshore EIA and HRA Project Manager/Director for the Berwick Bank project, and Project Director for Ossian Offshore Wind Farm. They have also supported clients through the UK Round 4 and ScotWind application processes and provided strategic advice for TTRPSEL's key offshore wind project portfolio. In addition to offshore projects, they have managed and delivered a variety of marine and onshore projects, including the environmental aspects of large onshore infrastructure projects like the South West Scotland Connections project. Their experience spans over 17 marine projects, where they led HRA, consenting strategy, and marine mammal assessments. They provided statutory nature conservation advice for the CES Pentland Firth and Orkney Waters wave and tidal leasing round, advising on site selection, environmental constraints, and landfall options.
TTRPSC: Physical Processes Technical Lead	Meng, CEng	The Physical Processes Technical Lead has 16 years of experience with the coastal team at TTRPSC, specialising in the development of hydrodynamic models using the MIKE suite of software for fluvial, estuarine, and coastal environments. They have contributed to the preparation of EIA Reports and technical appendices for various studies, including several offshore wind farms in Scottish waters. As the principal modeller for the 'Irish Coastal Protection Strategy Study,' they conducted tidal and storm surge hindcasting and wave modelling around the entire Irish coastline to identify primary coastal flood risk areas and produce flood plain maps for various return period water levels. Additionally, they were a key member of the TTRPSC team that provided a real-time storm surge forecasting service for the Irish coastline for 15 years.
TTRPSEL: Benthic Ecology Technical Lead	BSc (Hons) Marine Biology & Oceanography	The Benthic Ecology Technical Lead is a seasoned marine ecologist and project manager with over 12 years of experience in global marine surveys and consulting. They have provided regulatory advice to the Marine Management Organisation (MMO) to support consenting and licensing for various marine developments, including construction projects, aggregates, aquaculture, and offshore renewables. Their expertise also extends to baseline characterisation and EIA for offshore renewables, estuarine and coastal constructions, and utilities projects. With extensive global experience in marine habitat assessment and the interpretation of sediment and seawater physico-chemical data, they specialise in detailed hydrocarbon analysis to identify contamination sources. Additionally, they are adept at applying these assessments within an EIA context to evaluate the potential impacts on specific receptors.

Expert	Qualifications	Relevant experience
TTRPSEL: Fish and Shellfish Ecology Technical Lead	BSc, PhD, ACIEEM	The Fish and Shellfish Ecology Technical Lead is an Associate Director with over 13 years of experience as a marine consultant in the offshore renewables sector. Holding a PhD in marine ecology, they specialise in fish and shellfish ecology, as well as benthic subtidal and intertidal ecology. Their expertise includes mapping and assessing protected and sensitive habitats, conducting EIA, Ecological Impact Assessment (EcIA), and HRA for various industries and developments, particularly offshore renewables and cables. They have also served as an expert witness at hearings for several offshore wind farms in the UK, providing evidence on the impact of wind farm construction and operation on seabed habitats, including Annex I habitats of European sites.
TTRPSEL: Marine Mammals Technical Lead	PhD (Cambridge), MRes, BSc (Hons)	The marine mammal EIA was conducted by a skilled team at TTRPSEL, led by an Associate Director. The technical lead holds a BSc (Hons) in Applied Marine Biology from Heriot-Watt University, an MRes in Marine and Coastal Ecology and Environmental Management from the University of York, and a PhD in Designing Marine Protected Areas from the University of Cambridge. With over 19 years of experience, they specialize in marine mammal assessments for the offshore renewable industry and provide ecological advice for policy, legislation, and technical guidance in EIA and HRA.
Jasco: Underwater Sound Technical Lead	MEng (Acoustics) PhD (Underwater Piling Noise)	The Technical Lead for underwater sound holds a PhD from the Institute of Sound and Vibration Research at the University of Southampton, with a specialization in underwater piling noise, acoustic modelling, variability, and advanced sound propagation. Since joining JASCO, they have contributed over a decade of applied and theoretical research on underwater piling for a range of offshore infrastructure, including large windfarm monopiles, jacket pin piles, and small deep-water anchor piles for Floating Production, Storage and Offloading (FPSO) and Floating Liquefied Natural Gas (FLNG)platforms. Their work has supported both commercial clients and regulatory bodies, providing cutting-edge scientific advice and contributing to the development of impact assessment frameworks. They have authored several technical papers for government and federal agencies, including Marine Scotland and the European Union, and have published peer-reviewed research on piling and shipping noise in respected journals such as the Journal of the Acoustical Society of America (JASA).
NIRAS: Offshore Ornithology Technical Lead	BSc (Hons), MSc, BTEC	The Offshore Ornithology Technical Lead is a seasoned Marine Environmental Consultant with extensive project management expertise. Their experience spans EIAs, consenting, licensing, and Geographic Information Systems (GIS) for marine projects. They possess significant experience in telecom cables (both national and international landings) and offshore wind projects, including Plan-level HRAs for extensions (2019) and Round 4.
Brown & May Marine: Commercial Fisheries Technical Report Lead	BSc (Hons)	The Commercial Fisheries Technical Report Lead has over 12 years of experience in the provision of technical services relating to commercial fishing and fish ecology for numerous offshore wind farm projects across the UK, including extensive experience in Scotland. This has included the technical lead and expert

Expert	Qualifications	Relevant experience
		support in the development of commercial fisheries and fish ecology EIA chapters and technical appendices, commercial fisheries stakeholder engagement and fulfilment of the Fisheries Liaison Officer (FLO) role for a wide range of projects. In addition, they have experience as expert witness during Planning Inspectorate hearings on commercial fisheries and fish and shellfish ecology technical issues.
NiMa Consultants Ltd: Commercial Fisheries Lead	BA Geography (First Class Honours) MSc Tropical Coastal Management (Distinction)	Director and founder of NiMa, they have 19 years of marine consulting experience. They have provided consultancy support to a variety of marine sectors including fisheries and aquaculture, ports and harbours, oil and gas, and most extensively to offshore renewables. They support clients through all aspects of the development process from site selection and feasibility through to EIA and consent application and subsequent consent compliance. Their experience helps clients ensure compliance and identify opportunities, constraints and risks to development projects. They have particular expertise in the consenting of, and consent compliance associated with offshore wind farm projects and has provided consenting support and advice to a number of offshore wind farm developers. They have specific technical experience in undertaking commercial fisheries impact assessment for offshore wind farm projects.
Anatec: Shipping and Navigation Technical Lead	MSc.	The Shipping and Navigation Technical Lead is a Senior Risk Analyst at Anatec Ltd with over a decade of experience in shipping, navigation, and marine risk assessment, specialising in offshore wind farms. They have participated in numerous Navigation Risk Assessment processes for various successfully consented UK wind farm projects. Their expertise encompasses all related assessment components, including stakeholder liaison, leading hazard workshops, data analysis and interpretation, and software risk modelling.
Sagentia: Aviation (Military and Civil) Technical Lead	Joint Air Traffic Controllers Course 1988. Dip. Leadership and Management, Lincoln 2006.	The Aviation Technical Lead has extensive experience in independently assessing the potential technical impacts of wind turbine developments on aviation stakeholders and equipment, including radar, navigation beacons, and communication links. They are proficient in all stages of wind energy aviation assessment and planning, including scoping, Preliminary Environmental Information Report (PEIR) and EIA Report preparation, DCO proof of evidence preparation, and mitigation of aviation and military impacts. Their notable offshore projects include Neart na Gaoithe Offshore Wind Farm, Inch Cape Offshore Wind Farm, Norfolk Vanguard and Norfolk Boreas, the Thanet Extension, and the Hornsea projects. They excel in stakeholder relationship management and are experienced facilitators of meetings between developers and receptor organizations. Additionally, they have assessed onshore and offshore wind farms in the UK, France, Norway, Denmark, Republic of Ireland, and the Far East.
TTRPSEL: Other Sea Users and Major Accidents and Disasters Technical Lead	MSc Environmental Science, BSc Ocean Sciences, Chartered Environmentalist	The Other Sea Users and Communications and Major Accidents and Disasters Technical Lead has over 15 years of experience in the energy sector, encompassing both onshore and offshore exploration, intervention, and production in oil and gas operations. They have transitioned to the renewables sector,

Expert	Qualifications	Relevant experience
	(Cenv), Chartered Scientist (Csci)	specifically offshore wind, where they have gained expertise as an EIA offshore coordinator and technical lead for other sea users, major accidents and disasters, marine archaeology, aviation, and radar. Their experience also includes Cumulative Environmental Assessment (CEA), the preparation of Series and Dataset metadata templates using the Metadata Maestro tool, emergency response planning, Oil Spill Contingency Planning, environmental auditing, and environmental permitting specific to the offshore wind sector.
TTRPSC: Climate Change Technical Lead	BSc (Hons), MSc, BREEAM UK NC Assessor	The Climate Change Technical Lead possesses extensive experience and technical expertise in sustainability principles, including corporate sustainability, climate change, and sustainable design. They are skilled in assessing the impacts of climate change and conducting carbon footprint analyses at both project levels, including DCO scale, and organisational levels.
BiGGAR: Socio-Economics Technical Lead	BEc	The Socio-Economics Technical Lead is an applied economist with over 25 years of consultancy experience. They co-founded BiGGAR Economics in 2002 and previously managed Deloitte's economic consulting practice in Scotland and Northern Ireland. They have led all of BiGGAR Economics' work in the renewable energy sector, assessing the economic and tourism impacts of more than 60 renewable energy proposals and providing expert witness at several hearings and inquiries. Their understanding of renewable energy projects and experience in community, social, and economic development have been complemented by broader commissions that have considered the opportunities and requirements of the renewable energy industry.
TTRPSEL: Inter-Related and Ecosystem Effects Technical Lead	BSc, Postgraduate Advanced Certificate, Practitioner Member (ISEP)	The Inter-Related and Ecosystem Effects Technical Lead is a seasoned marine environmental consultant with twenty years of experience in obtaining consents and permits for coastal and offshore developments across a diverse range of projects, including submarine cables, marine renewables, and the oil and gas industry. Since joining RPS nearly two years ago, they have specialised in HRAs for offshore renewable projects. In response to stakeholder feedback on the Berwick Bank Offshore Wind Farm project, they developed the first ecosystem-based assessment, which was included in the inter-related effects chapter of EIA Report.
TTRPSEL: Marine Archaeology Technical Lead	LLB (Hons), MSc, PhD	The Marine Archaeology Technical Lead is an experienced maritime archaeologist with over seven years of experience in marine heritage consultancy. They have been the technical lead on Ossian Transmission Infrastructure, Ayre and Bowden offshore wind farms and DCO Examinations for the Morgan Generation Assets and the Morgan and Morecambe Transmission Assets. They have worked as a technical specialist in offshore renewable energy in the UK, Republic of Ireland, and Europe and has also supported port and harbour developments, interconnector cables, carbon capture and storage and the aggregates industry. They have delivered numerous marine heritage EIAs, Environmental Statement chapters, Technical Reports, Scoping Reports and WSIs. They have also directed underwater and intertidal archaeological fieldwork including diving projects.

Expert	Qualifications	Relevant experience
		They have experience of project managing marine licence applications and variations and also have experience of post-consent work, including acting as an offshore consents manager on the UK section of the NeuConnect Interconnector and as Environmental Clerk of Works (ECoW) for Neart na Gaoithe Offshore Wind Farm.
TTRPSC: Human Health Technical Lead	MA PGDip CEnv MIEMA PFPH	The Human Health Technical Lead is the Director of Health and Social Impact at TT RPS. They are first author of the IEMA health in EIA guidance 2022 and the Institute of Public Health (IPH) Health Impact Assessment (HIA) guidance 2021. They are also first author of the World Health Organization (WHO) 2021 review of international practice on health in EIA and Strategic Environmental Assessment (SEA),is a registered public health practitioner with the Faculty of Public Health, as well as an Honorary Research Fellow and Member of the WHO Collaborating Centre on Health in Impact Assessments at the University of Liverpool. They have over 18 years' experience as a professional consultant, with a public health, environmental science and legal practice background and is chair of the health section of the International Association for Impact Assessment. They are experienced with renewable and linear projects, as well as many other sectors and as an expert witness they have demonstrated robust health assessment at Public Inquiry.
TTRPSEL: HRA Technical Lead	BSc (Hons), MSc	The HRA Technical Lead has 10 years' experience supporting and delivering marine projects, including for oil and gas projects worldwide, and marine renewable energy projects in the UK and abroad. This includes application documents such as EIAs and HRAs, as well as post-consent requirements of deemed marine licences (dMLs) for offshore windfarms and interconnector cabling projects. They have also been involved in developing supporting information, such as European Protected Species (EPS)/Annex IV risk assessments, for EPS and derogation licences in the UK and Ireland respectively as well as writing Critical Habitat Assessments (CHA) internationally.
TTRPSEL: HRA Derogation Technical Lead	BSc, PhD	The HRA Derogation lead is a Senior Associate Director at TTRPSEL with a PhD in Marine Ecology and over 17 years of experience as a marine consultant, primarily within the offshore renewables sector. They are an Associate Member of the Chartered Institute of Ecology and Environmental Management (CIEEM). They are a highly experienced practitioner EIA, EcIA, and HRA, supporting a wide range of developments including offshore wind farms and subsea cable projects. They specialise in marine ecology, with particular expertise in assessing impacts of offshore infrastructure on marine protected areas and developing mitigation and compensation strategies in line with the requirements of EIA and the Habitats Regulations process. This has included development of compensation strategies for seabed impacts of offshore cabling on SACs and Marine Conservation Zones and seabird compensation for offshore wind impacts on SPAs for offshore wind projects. As a recognised expert in their field, they have acted as an expert witness at hearings for several UK offshore wind farms and other offshore infrastructure and have extensive experience of working

Expert	Qualifications	Relevant experience
		with statutory nature conservation bodies and regulators in the UK and overseas.
SLR Consulting: Offshore Ornithology Compensation Lead	BSc, MSc, PhD	The Offshore Ornithology Compensation Lead is a Technical Director at SLR Consulting with a PhD in avian ecology and population modelling and over 20 years' experience of wildlife impact assessment, 17 of which have been as a consultant within the offshore renewable sector. They have acquired considerable experience of ornithological impact assessment for offshore renewables, particularly wind farms, and have produced numerous offshore ornithology chapters for EIA and HRA as well as supporting technical documents and peer reviewed scientific publications. They have provided expert witness services for several offshore wind farm at public hearings and have become increasingly involved in the provision of ornithology compensation for offshore wind farms. Compensation projects have included the provision of artificial nesting habitat and protected nesting areas to offset predicted losses. They have also developed ornithology monitoring programmes for consented wind farms and have been involved in the production of many pieces of industry guidance, working closely with all industry stakeholders.

1.5 References

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