Spiorad na Mara Offshore Wind Farm

Offshore Project

Environmental Impact Assessment Report

Chapter 22: Offshore Human Health, Volume 2a

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22. OFFSHORE HUMAN HEALTH

22.1 INTRODUCTION

22.1.1.1 This chapter of the Environmental Impact Assessment Report (EIAR) presents the results of the assessment of the likely significant effects of the proposed Spiorad na Mara Offshore Wind Farm (hereafter referred to as 'the Offshore Project') with respect to human health.

22.1.1.2 This chapter should be read in conjunction with the project description provided in **Chapter 3: Project Description, Volume 1a** and the relevant parts of the following chapters and appendices:

- **Chapter 2: Policy and Legislative Context, Volume 1a**, which provides a summary of the legislation and policy context applicable to this Project;
- **Chapter 6: Socio-economics, Volume 2a** which assesses the effect of the construction, operation and decommissioning of the Offshore Project on socio-economics;
- **Chapter 18: Seascape, Landscape and Visual Impact Assessment, Volume 2a,** which assesses the seascape, landscape and visual effects arising from the construction, operation and decommissioning of the Offshore Project;
- **Chapter 19: Offshore Airborne Noise, Volume 2a** which assesses the noise effects arising from the construction, operation and decommissioning of the Offshore Project; and
- **Appendix 6.2: Focus Group Summary Report, Volume 2c**, which provides a summary of focus groups which have informed the health baseline and assessment.

22.1.1.3 This technical chapter describes the following:

- Legislation, planning policy and other guidance that has informed the assessment (Section 22.2);
- Outcome of consultation and engagement that has been undertaken to date, including how matters relating to human health have been addressed (Section 22.3);
- Scope of the assessment for human health (Section 22.4);
- The methods used for baseline data gathering and impact assessment (Section 22.5);
- Overall baseline (Section 22.6);
- Embedded environmental measures relevant to human health and the relevant maximum design scenario (Section 22.7);
- Assessment of human health likely significant effects and further mitigation (Section 22.8)
- Assessment of human health cumulative effects (22.13); and
- Information sources and documentation referred to in this chapter (Section 22.50).

22.1.1.4 The chapter is supported by the following appendices and figures:

- **Figure 6.1: Socio-economics Local and National Study Area, Volume 2b**;
- **Figure 6.3: Scottish Index of Multiple Deprivation, Volume 2b**;

22.2 SUMMARY OF POLICY AND LEGISLATIVE CONTEXT

22.2.1.1 This section outlines the legislation, policy and guidance that is relevant to the assessment of likely significant effects on human health associated with the development, construction, operation and maintenance, and decommissioning of the Offshore Project. In addition, other national, regional, and local policies are considered within this assessment where they are judged to be relevant. Further information on policies relevant to the EIA is provided in **Chapter 2, Volume 1a**.

22.2.1.2 A summary of the legislation and policy relevant to human health is provided in **Table 22-1** below.

Table 22-1: Summary of policy and legislation relevant to Human Health

National and Local Policy and Legislation	Relevance to the Assessment
Scottish Government Policy	
Scotland's Population Health Framework (2025-2035)	The framework sets out national priorities to improve health outcomes and reduce inequalities. There is a strong emphasis on prevention and addressing the wider social, economic, and environmental determinants of health. It is directly relevant to this assessment, highlighting the importance of considering how developments may impact population health, especially for vulnerable groups. The five key focus areas are: - Prevention-Focused System – Early intervention and integrating health into all policies. - Social and Economic Factors – Tackling poverty, enhancing education, and supporting employment. - Places and Communities – Improving planning, housing, and climate resilience. - Enabling Healthy Living – Encouraging healthy behaviours and reducing harmful exposures. - Equitable Health and Care – Enhancing access and reducing health inequalities.
National Planning Framework 4 (NPF4) (Scottish Government, 2023)	The national spatial strategy for Scotland/*Alba*, setting out the national planning policy. The following policies are relevant to the human health assessment: - Policy 14 – Design, Quality and Place Promotes well-designed places that support health, wellbeing, and quality of life. - Policy 15 – Local Living and 20-Minute Neighbourhoods. Encourages development that enables people to access services, greenspace, and amenities locally, improving health and reducing inequalities.

National and Local Policy and Legislation	Relevance to the Assessment
	- Policy 20 – Blue and Green Infrastructure Supports access to nature and outdoor spaces, which are vital for physical and mental health. - Policy 21 – Play, Recreation and Sport Promotes active lifestyles and wellbeing through inclusive access to recreational facilities. - Policy 22 – Flood Risk and Water Management Protects communities from environmental hazards that can impact health and safety. - Policy 23 – Health and Safety Aims to protect people from environmental harm and safety risks and encourages development that supports healthier living. - Policy 25 – Community Wealth Building Supports inclusive economic development, which can improve social determinants of health.
National Performance Framework	The Framework is Scotland's/*Alba's* overarching wellbeing strategy. It sets out a vision for the kind of country Scotland/*Alba* aims to be, with a strong focus on improving quality of life, reducing inequalities, and promoting sustainable development. Human health is a central theme throughout the framework. The National Performance Framework includes 11 National Outcomes, several of which directly relate to human health: - We are healthy and active - We tackle poverty by sharing opportunities, wealth and power more equally - We live in communities that are inclusive, empowered, resilient and safe - We grow up loved, safe and respected - We respect, protect and fulfil human rights
Draft Updated Sectoral Marine Plan for Offshore Wind Energy (2025)	The Scottish Government consulted on its draft update to the Sectoral Marine Plan for Offshore Wind Energy (SMP-OWE) in Summer 2025. The draft updated SMP-OWE sets out an integrated planning framework for the ScotWind leasing round and the Targeted Oil and Gas leasing rounds, alongside consideration of additional capacity for rest and demonstration projects. The Plan considers human health within its Strategic Environmental Assessment and socio-economic analysis. It highlights potential health impacts from environmental changes, such as noise, air quality, and access to natural

National and Local Policy and Legislation	Relevance to the Assessment
	spaces, as well as benefits like job creation and improved wellbeing. The plan also recognises the importance of engaging with communities to understand local health concerns, particularly in coastal and island areas.
Scotland's Draft Energy Strategy and Just Transition Plan (2023) (Scottish Government, 2023	The Scottish Government consulted on its Draft Energy Strategy and Just Transition Plan in 2023. While health is not a central theme, the strategy highlights the need to minimise harm and maximise wellbeing through clean, affordable, and resilient energy. Stakeholder feedback has called for stronger integration of health outcomes, including improved air quality, reduced fuel poverty and better living conditions.
Scotland's National Strategy for Economic Transformation (2022) (Scottish Government, 2022	Scottish Government policy setting out the priorities for Scotland/*Alba's* economy and the actions needed to maximise opportunities over the next decade. The programme of action set out in this document includes the following 'projects' that are relevant to this assessment: - Entrepreneurial People and Culture - New Market Opportunities - Productive Businesses and Regions - Skilled Workforce - A Fairer and More Equal Society - A Culture of Delivery
Update to the Climate Change Plan, 2018-2032: Securing a Green Recovery on a Path to Net Zero (Scottish Government, 2020	Updates the Scottish Government's 2018 Climate Change Plan and sets out the approach to delivering a green recovery and a pathway to deliver on Scotland's/*Alba's* climate change targets. The plan is highly relevant to assessment with emphasis on sustainable development, inclusive engagement, and transparent decision-making. It highlights the importance of health and wellbeing, recognising that climate action should contribute to improved public health, reduced inequalities, and resilient communities. The plan also aligns with national outcomes and local strategies that promote accessible, insight-led engagement, ensuring that environmental mitigation measures deliver both ecological and social benefits.
The National Islands Plan (2019) (Scottish Government, 2019	Sets out 13 Strategic Objectives to improve the quality of life for Scotland/*Alba's* island communities. Objectives relevant to this assessment include: - Population Levels – Address population decline and support a balanced demographic.

National and Local Policy and Legislation	Relevance to the Assessment
	- Sustainable Economic Development – Promote resilient and inclusive island economies. - Transport – Improve transport services and connectivity. - Housing – Enhance housing availability and quality. - Fuel Poverty – Reduce fuel poverty across island communities. - Digital Connectivity – Improve access to reliable digital infrastructure. - Health, Social Care and Wellbeing – Strengthen health services and promote wellbeing. - Environmental Wellbeing and Biosecurity – Protect natural environments and manage biosecurity risks. - Climate Change and Energy – Support climate mitigation/adaptation and clean energy. - Empowered Island Communities and Strong Local Partnerships – Foster community empowerment and collaboration. - Arts, Culture and Language – Support cultural heritage and linguistic diversity. - Education – Improve access to lifelong learning and education. - Implementation – Ensure effective delivery and monitoring of the Plan
The National Marine Plan (2015), (Scottish Government 2015)	The plan covers the management of both Scottish inshore waters and offshore waters and acts as the single framework for managing seas. Relevant policies to this assessment include: - GEN 3 Social Benefit: Sustainable development and use which provides social benefits is encouraged when consistent with the objectives of this Plan. - GEN 13 Noise: Development and use in the marine environment should avoid significant adverse effects of man-made noise and vibration, especially on species sensitive to such effects. The next iteration of the plan, The National Marine Plan 2 is a commitment in the 2024 to 2025 Programme for Government with policy development and statutory assessments ongoing. Initial draft objectives have been published with reference to human health.
Local policy	
Outer Hebrides Local Development Plan (2018) (CnES, 2018)	Adopted planning policy for the Outer Hebrides/*Na h-Eileanan Siar*, setting out the vision and spatial strategy for

National and Local Policy and Legislation	Relevance to the Assessment
	the development of the area over the subsequent 10-20 years. Policies relevant to this assessment include: - Policy DP1: Design Principles - Policy ED1: Supporting Economic Development - Policy HCL1: Community Land Use - Policy SC1: Social and Community Facilities - Policy EI8: Energy Efficiency and Heat Networks - Policy EM2: Waste Management Comhairle nan Eilean Siar is currently in the early stages of preparing the next Outer Hebrides Local Development Plan (LDP3), which will replace the current 2018 plan. The Council is currently in the initial, evidence-gathering stage, which includes a "Call for Ideas".
Comhairle nan Eilean Siar Corporate Strategy 2024-2027 (2024) (CnES, 2024)	Strategy document setting out the strategic direction, ambition, aspirations and commitments of Comhairle nan Eilean Siar (CnES). The Strategy includes several commitments relevant to human health and wellbeing, typically framed within broader strategic themes. These include: - Improving access to health and social care services, particularly in remote and rural island communities. - Supporting mental health and wellbeing, especially through community-based initiatives and partnerships. - Reducing health inequalities by addressing social determinants such as housing, employment, and transport. - Promoting active lifestyles through investment in leisure, sport, and outdoor spaces. - Ensuring safe and healthy environments, including clean energy, sustainable development, and climate resilience.
Highlands and Islands Enterprise Strategy 2023-2028 (2023) (HIE, 2023)	Strategy document setting out the long-term vision and ambitions for the Highlands and Islands. Key outcomes identified in this strategy that are relevant to this assessment are: - Promotes a wellbeing economy to improve quality of life across the region - Supports fair work practices, contributing to better mental and physical health

National and Local Policy and Legislation	Relevance to the Assessment
	- Focuses on inclusive growth, addressing poverty and health inequalities - Encourages community wealth building to create resilient, empowered communities - Recognises the importance of adequate housing, transport, and childcare as social determinants of health - Aims to sustain a balanced and skilled working-age population, with support for women and young people to enhance long-term wellbeing
Urras Oighreachd Ghabhsainn Strategic Plan (2022) (Galson Estate Trust, 2022)	Strategic Plan setting out the vision for the development of the community-owned Galson Estate in north-west Lewis/*Eilean Leòdhais*. Key priorities that are relevant to this assessment include: - Health and Wellbeing - Population Sustainability - Community Empowerment - Infrastructure and Housing - Education and Skills
Dalmore to Garynahine Community Plan (2019) (Carloway Estate Trust, 2019)	Community Plan to guide development in the Dalmore/*Dail Mhor* to Garynahine/*Gearraidh na h-aibhne* area of the community-owned Carloway/*Càrlabhagh* Estate on the west coast of Lewis/*Eilean Leòdhais*. Objectives that are relevant to this assessment include: - Population retention and growth - Supporting affordable housing and local employment. - Promoting access to health services and facilities. - Community infrastructure - Education and skills - Social inclusion and empowerment
Guidance	
Marine Scotland, Defining 'Local Area' for Assessing Impact of Offshore Renewables and Other Marine Developments: guidance principles (Marine Scotland, 2022)	Sets out an approach to defining the local impact area on land for developments such as offshore windfarms at sea. The document sets out the following principles that have informed the identification of the study areas for this assessment, as described in Section 22.4.2 22.4.2: - Principle 1 – Dual Geographies; - Principle 2 – Appropriate Impacts; - Principle 3 – Epicentres; - Principle 4 – Accountability;

National and Local Policy and Legislation	Relevance to the Assessment
	- Principle 5 – Understandable; and - Principle 6 – Connected Geography.
Scottish Human Rights Commission, Economic, Social and Cultural Rights in the Highlands and Islands (Scottish Human Rights Commission, 2024)	Report highlighting areas of human rights concern in rural areas of Scotland/*Alba*, including housing, access to food, healthcare, fuel poverty, access to technology, attainment gaps in education, and transport connectivity. The findings of this report have informed the baseline set out in Section 22.6 22.6and in **Appendix 6.1: Detailed Social and Economic Baseline, Volume 2c**.
ISEP (formerly IEMA) Guide: Effective Scoping of Human Health in Environmental Impact Assessment (2022)	Provides guidance and a framework to support a proportionate approach to scoping health effects for EIA.
ISEP Guide: Determining Significance for Human Health in Environmental Impact Assessment (2022)	Provides a structured framework for assessing health significance in EIA.
Public Health Scotland, A guide to Health Impact Assessment (2024)	Provides guidance and support for undertaking HIAs or considering health as part of impact assessments. The document sets out the principles that should underpin an HIA and steps to take when carrying out such assessments.

22.3 SCOPING AND CONSULTATION

22.3.1.1 This section describes the stakeholder engagement undertaken for the Offshore Project. This consists of early engagement, the outcome of, and response to, the Scoping Opinion in relation to human health, informal consultation and consultation undertaken though the Preliminary Application Consultation (PAC) process (hereafter referred to as the 'formal consultation'). An overview of the formal consultation undertaken for the Offshore Project as a whole can be found in **Chapter 5: Approach to EIA, Volume 1a** and **Appendix 5.4: Stakeholder Consultation and Engagement, Volume 2c**.

22.3.2 EARLY ENGAGEMENT

22.3.2.1 Community engagement efforts began in 2021 for the Offshore Project and included public information events held in May 2022 to present the initial Project concept and gather early community feedback to inform its development. The overarching aim of the Pre-Scoping Consultation was to proactively identify any immediate concerns that stakeholders might have and to establish clear and open lines of communication. Further information is provided in **Planning Document: Offshore Pre-Application Consultation report.**

22.3.3 SCOPING OPINION

22.3.3.1 Spiorad na Mara Limited (hereafter referred to as 'the Applicant') submitted a Scoping Report (Spiorad na Mara Limited, 2023) and request for a Scoping Opinion to the Marine Directorate - Licensing Operations Team (MD-LOT) in September 2023. A Scoping Opinion was received in May 2024 (MD-LOT, 2024). At this stage, human health was not included as a standalone topic, however comments received in the Scoping Opinion relating to human health and how these have been addressed in this EIAR are provided in **Appendix 5.2: Scoping Opinion Response, Volume 1c**.

22.3.4 CONSULTATION

22.3.4.1 Consultation is a key feature of the EIA process and continues throughout the lifecycle of the Offshore Project, from the initial stages through to consent and post consent.

22.3.4.2 Consultation captures all consultation and engagement and has been ongoing with a number of prescribed and non-prescribed consultation bodies and local authorities in relation to human health. All consultation to date has been undertaken in line with the process described in **Chapter 5, Volume 1a**. Feedback received during this process has been incorporated into the EIAR wherever possible as appropriate.

22.3.5 FOCUS GROUPS AND FURTHER ENGAGEMENT

22.3.5.1 Further engagement was carried out on the Isle of Lewis/*Eilean Leòdhais* in summer 2024 through focus groups and individual interviews with affected communities including residents and interest groups who may be directly impacted by the Offshore Project. The objectives of this engagement were to:

- Identify characteristics and values which might underpin community concerns or priorities;
- Identify perceived social and economic impacts of the development proposals and compare those impacts with those which had already been identified through desk-based research, scoping responses and other consultation responses;
- Understand broad groupings of communities and gather information on how impacts arising from the Offshore Project might affect different people and areas in different ways to inform the definition of meaningful epicentres of impact and how they may change;
- Gather local knowledge and experience to gain a greater understanding of how the values and past experiences of the community underpin concerns or priorities with respect to the proposed Offshore Project; and
- Gather the community's views on potential mitigation strategies to enhance positive or neutral impacts and reduce negative impacts.

22.3.5.2 The findings of the engagement have informed the baseline and methodology for this chapter. **Appendix 6.2, Volume 2c,** provides further detail on this engagement, including the methodology and ethical considerations.

Table 22-2 Summary of consultation for human health

Consultee	Date/Document	Comment	Response/where this is addressed in the EIAR
MD-LOT	Scoping Opinion, May 2024	Paragraph 5.3.10.3: The Scottish Ministers advise that a full assessment of potential impacts to human health from the Proposed Development should be provided in the EIA Report.	This chapter of the EIAR provides an assessment of potential impacts to human health.
MD-LOT	Scoping Opinion, May 2024	Paragraph 5.4.2.2: The Scottish Ministers note the local, regional and national study areas to be used within the assessment are included in section 8.2.2 of the Scoping Report. The Scottish Ministers advise consideration of the South Bragar Grazings Committee advice on the study areas to be classed as local and regional. Consideration should be given to where the epicentre of the impacts may be, for example ports, fishing communities or landfall. The Scottish Ministers expect a description of the epicentres of impact to be included within the EIA Report, as well as the impacts that may be associated with these epicentres. This is in line with MD-SEDD advice dated 24 November 2023.	Section 22.4.2 22.4.2 of this chapter discusses the approach taken to identifying the relevant study areas for each impact considered in the assessment. This has been informed by stakeholder feedback and advice and relevant guidance in **Table 22-1**.
MD-LOT	Scoping Opinion, May 2024	Section 8.2.3.2 of the Scoping Report refers to 2011 population data on the Isle of Lewis. The Scottish Ministers, in line with the MD-SEDD advice dated 24 November 2023, would advise using more recent population data. The Scottish Ministers further refer to the representations made by Barvas Estate Trust and Anderson MacArthur (on behalf of Lewis Island Crofters Limited) on additional data sources to be used to inform the SEIA.	A full list of sources that have been used to inform the baseline and assessment is included in Section 22.522.6. Data sources have been identified with reference to relevant guidance and representations, including those cited in the comment. The most up-to-date data has been used wherever possible, including data from the 2022 Scottish Census that has been published since the Scoping

Consultee	Date/Document	Comment	Response/where this is addressed in the EIAR
			Report. Data gaps or limitations are outlined in Section 22.5.2**Error! R eference source not found.**.
MD – Marine Analytical Unit (MAU)	Scoping Opinion, May 2024	The MAU provided General Advice for Socio-Economic Impact Assessment, which included health provision and social problems including ill-health as impacts that should be considered in the scope of a socio-economic impact assessment.	Impacts on access to health services are included in the scope of the assessment during the construction and operation phases of the Offshore Project, in Section 22.80 of this chapter.
MD-MAU	Scoping Opinion, May 2024	The MAU guidance noted that an assessment of relevant socio-economic impacts should consider the phases in which socio-economic impacts might be experienced, including development as well as construction, operation and maintenance, and decommissioning.	The development phase is discussed in the temporal scope. 0
Shawbost Community Council	Scoping Opinion, May 2024	Shawbost Community Council stated that human health in general should be scoped into the EIA, and noted existing evidence regarding the potential health effects of living and working in close proximity to wind turbines.	Human health has been scoped into the EIA and includes potential health effects of resident population living in close proximity to the project. Section 22.4.5 sets out the impacts that have been scoped into this assessment and Section 22.4.6 sets outs impacts scoped out of this assessment. Assessment of the OTW will be undertaken in the EIAR for the Onshore Project.
Shawbost Community Council; Sandwick Community Council; Barvas Estate Trust	Scoping Opinion, May 2024	A number of stakeholders commented that either the local health board or an independent medical body should be engaged as a stakeholder to advise on the human health impacts.	No specific engagement has been undertaken with the local health board to seek advice on potential human health impacts. However, regular updates have been provided to community councils, and public consultation events have been held to ensure that local residents remain

Consultee	Date/Document	Comment	Response/where this is addressed in the EIAR
			informed about the Offshore Project and can raise any concerns, including health related issues. Feedback from these stakeholder groups has been used to shape the scope of the human health assessment in this chapter. -related issues. Feedback from these stakeholder groups has been used to shape the scope of the human health assessment in this chapter.
Lewis Island Crofters Limited; Barvas Estate Trust; Carloway Estate Trust; Galson Estate Trust	Scoping Opinion, May 2024	A number of stakeholders commented that the proposed scope of the Noise and Vibration assessment should include risk to human receptors leading to adverse health effects, which can include sleep disorders, headaches, mood disorders, inability to concentrate, tinnitus, effects on balance and heart, and vibratory sensations.	**Chapter 15: Airborne Noise and Vibration, Volume 2** includes an assessment of onshore construction and operational airborne noise impacts on humans. This is assessed in Section 22.8 of this chapter. Vibration is scoped out of **Chapter 15: Airborne Noise and Vibration, Volume 2** as the separation distances between turbines and human receptors are more than 6 km. At these distances there will not be a vibration impact. On this basis, vibration effects are also scoped out of this chapter.
Urras Sgire Oighreachd Bharabhais Community Company; Sandwick Community Council; Shawbost Community	Scoping Opinion, May 2024	Community wellbeing and the general wellbeing of the population were raised as topics that should be included in the scope of the EIA by a number of stakeholders.	Community wellbeing is included in the assessment of health effects in Section 22.8 of this chapter.

Consultee	Date/Document	Comment	Response/where this is addressed in the EIAR
Council; South Bragar Grazings Committee			

22.4 SCOPE OF THE ASSESSMENT

22.4.1 OVERVIEW

22.4.1.1 This section sets out the scope of the EIA assessment for human health. This scope has been developed as the Offshore Project design has evolved and responds to feedback received to date as set out in Section 22.322.3.

22.4.2 SPATIAL SCOPE AND STUDY AREA

22.4.2.1 The geographical extent of potential human health effects from the Offshore Project may vary dependent on the nature of the effect. The study areas for human health are informed using professional judgment on the geographical extent of an effect, relevant best practice and ISEP (formerly IEMA) guidance.

22.4.2.2 The local study area includes the local authority area of Na h-Eileanan Siar (hereafter referred to as the 'Western Isles') and includes the Isle of Lewis and Harris/*Leòdhas agus Na Hearadh*. This study area captures effects on indirect health determinants such as access to health-related services.

22.4.2.3 The Smaller Study Area (SSA) includes onshore communities that may be impacted by the construction, operation and maintenance, and decommissioning of the Offshore Project. This includes noise, visual impacts, and changes in access to healthcare services. This study area includes coastal communities between Carloway/*Càrlabhagh* and Ness/*Nis* that may have strong economic, social, or cultural links to the marine environment.

22.4.3 TEMPORAL SCOPE

22.4.3.1 The temporal scope of the assessment of human health is the entire lifetime of the Offshore Project, which therefore covers the construction phase (up to five years anticipated to be from 2028 to 2033), the operation and maintenance phase, which is expected to last for a minimum of 35 years, and the decommissioning phase, which is anticipated to consist of the reverse of the construction phase, including a similar duration.

22.4.3.2 An assessment of effects has not been completed for the development phase although the Applicant recognises the potential health impacts that could arise during this phase. Consultation completed to date has identified a lack of trust in the process and anxiety and concern among participants about the potential impacts of the Offshore Project, which could be impacting wellbeing of some communities. The Applicant has conducted additional consultation throughout the design stage that is beyond requirements and best practice to inform the community about the project and mitigate potential adverse health and wellbeing impacts. Further information can be found in **Chapter 5, Volume 1a** and **Appendix 5.4, Volume 2c**.

22.4.3.3 The development phase has largely been progressed in advance of an application for a marine licence. There is limited scope to introduce additional mitigation through the EIA process in relation to development-stage effects. On this basis and noting that the EIA is focused on identifying and mitigating likely significant effects that can still be influenced through the consenting process, an assessment of development-phase health effects has been scoped out. Where relevant, community concerns will continue to be managed through the Developers ongoing consultation processes.

22.4.4 POTENTIAL RECEPTORS

22.4.4.1 The spatial and temporal scope of the assessment enables the identification of receptors which may experience a change as a result of the Offshore Project. The main receptors groups identified that may experience likely significant effects for human health are outlined in **Table 22-3**.

Table 22-3 Receptors requiring assessment for human health

Receptor Group	Receptors included within group
Residential populations	All residents in and between Carloway/*Càrlabhagh* and Ness/*Nis*. including adults and children
Vulnerable populations	Consideration has been given to vulnerable groups that may experience health inequalities and disproportionate impacts. This includes: • Children • Elderly • People with pre-existing health conditions • Socio-economically disadvantaged residents

22.4.5 POTENTIAL EFFECT

22.4.5.1 Potential impacts on the human health receptors identified above that are included in the assessment are summarised in **Table 22-4**Table 22-4.

Table 22-4 Activities or impacts scoped into the assessment

Receptor/s	Activity or Impact	Potential Effect
Construction		
Resident population, Vulnerable groups	Noise during construction activities	Adverse mental and physical health impacts on residents near to Offshore Project
Resident population, Vulnerable groups	Changes to visual landscape	Adverse mental and physical health impacts on residents near to Offshore Project
Resident population Vulnerable groups	Incoming construction workforce who may require access to health services	Increased pressure on healthcare and emergency services and reduced access to services

Receptor/s	Activity or Impact	Potential Effect
Operation and maintenance		
Resident population Vulnerable groups	Noise from operational turbines	Long-term exposure may contribute to annoyance or stress
Resident population, Vulnerable groups	Visual changes to seascape and coastal views	Mental wellbeing impacts and connection with place due to landscape change
Resident population, Vulnerable groups	Incoming operational workforce	Increased pressure on healthcare services
Decommissioning		
Resident population, Vulnerable groups	Noise from decommissioning	Adverse mental and physical health impacts on residents near to Offshore Project
Resident population, Vulnerable groups	Visual impacts	
Resident population Vulnerable groups	Incoming construction workforce who may require access to health services	Increased pressure on healthcare and emergency services and reduced access to services

22.4.6 ACTIVITIES OR IMPACTS SCOPED OUT OF ASSESSMENT

22.4.6.1 Human health was not included in the scoping report, therefore some impacts have been scoped out based on professional judgment and guidance. The following potential human health impacts have been scoped out:

- Electromagnetic fields (EMF): EMF generated by offshore wind farm cables is typically very low and well below internationally recognised health thresholds, such as those set by the World Health Organization (WHO). The offshore cables are buried beneath the seabed resulting in negligible exposure to the nearest human receptors.
- Air quality impacts offshore: air quality impacts for offshore works and development are considered minimal as offshore construction and operational activities generate very limited emissions. Offshore air quality is generally good with no sensitive human receptors in the marine environment. Air quality impacts will not be assessed in this EIAR however, an assessment of the OTW will be undertaken in the EIAR for the onshore project.
- Community cohesion or identity: impacts on community cohesion or identity do not present a direct pathway to human health effects from the offshore works. While changes in community dynamics can influence well-being indirectly, these social effects are assessed in **Chapter 6, Volume 2a.** There are no anticipated physical health impacts or measurable mental health effects arising solely from offshore activities that would warrant separate assessment under the human health chapter.
- Shadow flicker: Shadow flicker is typically associated with onshore wind turbines where rotating blades can intermittently block sunlight, potentially causing visual disturbance for

nearby receptors. For the offshore project, turbines are located at a substantial distance from land, at least 6km from the nearest human receptor, meaning there is no realistic pathway for shadow flicker to affect human receptors, and the effect can be scoped out.

- Occupation health and safety impacts on construction workforce: potential health impacts on the construction workforce are managed through established workplace health and safety legislation. This legislation mitigates risks to as low as reasonably practicable, there is no residual impact requiring assessment within the human health chapter. The indirect impact on access to healthcare access facilities is assessed.
- Operational wind turbine infrasound and low frequency noise: These noise impacts fall outside the scope of an ETSU-R-97 compliant assessment; and are not included in the IOA GPG which is accepted by the Scottish Government as current industry good practice. In December 2022, WSP published their report 'A review of noise guidance for onshore wind turbines' for the then Department for Business, Energy and Industrial Strategy (The BEIS report). That report confirms that: *"…the weight of evidence appears to indicate that wind turbine infrasound has no adverse effects on human health at typical exposure levels…"* and that; *"…due to the inherent characteristics of wind turbine sound, suitable controls on A-weighted sound levels are expected to also provide sufficient control for the potential impact of low frequency noise"*.
- Operational wind turbine vibration impact on humans: The separation distances between turbines and human receptors are more than 6 km. At these distances there will not be a vibration impact and as such this effect is scoped out.
- Transboundary impacts: the Offshore Project is located entirely within UK waters and at a significant distance from international boundaries. Given the scale and nature of the development, there is no pathway for human health effects to occur in other jurisdictions.

22.5 METHODOLOGY FOR BASELINE DATA GATHERING AND IMPACT ASSESSMENT

22.5.1 METHODOLOGY FOR BASELINE DATA GATHERING

Overview

22.5.1.1 Baseline data collection has been undertaken to obtain information over the study areas described in Section 22.422.4. The current baseline conditions presented in Section 22.622.6 presents available data on the identified study areas and have been drawn from a desk-based study of published sources. The following section describes the methodology for the desk-based study.

Desk study

22.5.1.2 The baseline is a desk-based study using published online data from credible government, industry, and academic sources, including the Office for National Statistics (ONS) and National Records of Scotland (NRS). Baseline data is presented at the appropriate geographical scale for the relevant study area, as discussed in Section 22.4.2, with regional and national data provided for comparison.

Baseline information that has informed the assessment is summarised in Section 22.6 of this chapter.

22.5.1.3 The data sources that have been collected and used to inform this human health assessment are summarised in **Table 22-5** below. The baseline also draws on findings from focus groups, research reports and policy documents. A full list of references is provided in Section 0.

Table 22-5 Data sources used to inform the health impact assessment

Source	Date	Summary	Geography
NRS	2020	Subnational Population Projections (2018-based)	Western Isles Scotland/*Alba*
Scottish Government	2020	Scottish Index of Multiple Deprivation (SIMD)	Available at data zone level for the whole of Scotland/*Alba*
Public Health Scotland	2021 - 2024	ScotPho Profiles	Lewis and Harris/*Leòdhas agus Na Hearadh* Western Isles Scotland/*Alba*
ONS	2024	Annual Survey of Hours and Earnings (ASHE)	Western Isles Scotland/*Alba*
NRS	2024	Census 2022	SSA Lewis and Harris/*Leòdhas agus Na Hearadh* Western Isles Scotland/*Alba*
ONS	2024	Life expectancy for local areas of Great Britain	Western Isles Scotland/*Alba*
ONS	2025	Annual Population Survey	Western Isles Scotland/*Alba*

22.5.2 DATA LIMITATIONS AND ASSUMPTIONS

Baseline datasets are not always available at the spatial level required for each study area. Where data is not available at the smallest area level, data for the larger area has been used as a proxy. For example, Census data is available for the 'island group' of Lewis and Harris/*Leòdhas agus Na Hearadh* rather than for the Isle of Lewis/*Eilean Leòdhais*. The baseline therefore uses Census data for Lewis and Harris/*Leòdhas agus Na Hearadh* for the island study area. The Community Outcomes Planning Profiles do not provide data at every spatial level for all indicators. Additionally, some of the indicators are still under development and therefore do not provide data.

22.5.3 METHODOLOGY FOR ENVIRONMENTAL IMPACT ASSESSMENT

Introduction

22.5.3.1 A matrix approach as described in **Chapter 5, Volume 1a** has been used to determine the significance of effects, by comparing impact magnitude against receptor value and sensitivity. This

methodology has been used to assess the construction, O&M, and decommissioning phases of the Offshore Project.

22.5.3.2 The following sections provide the assessment methodology used to assess the potential impacts on human health only.

Methodology for assessing human health effects22.4.4

22.5.3.3 The assessment of human health effects is qualitative and draws on the findings of other relevant topics and professional judgment. It considers the likely effects on human health of noise and vibration, changes to the visual landscape and the effect of an incoming construction workforce.

22.5.4 IMPACT ASSESSMENT CRITERIA

22.5.4.1 The assessment of significance follows IEMA guidance (2002). This criteria has been cross referenced with the work undertaken in collaboration with the University of the Highlands and Islands (UHI) to develop a targeted and refined methodology for the assessment of social and economic effects in the context of a highly rural island setting. All criteria recommended by the UHI work are covered by IEMA guidance.

Magnitude

22.5.4.2 The magnitude of an impact is determined by the following factors

- The **size** of the impact based on anticipated change versus the baseline.
- The **scale or extent** of the impact – the geo-spatial area which the impact would occur.
- The **duration** of the impact – whether the impact would be short, medium or long term.
- The **frequency** of the impact (if relevant) – how often the impact would occur.
- The **reversibility** of the impact – whether the impact would be temporary or permanent.
- Whether the impact would be **beneficial, adverse or negligible**.

22.5.4.3 **Table 22-6**Table 22-6 sets out factors characterising magnitude for human health as per IEMA guidance (2022). The table informs the professional judgement on assigning scoring of large, medium, small, or negligible magnitude.

Table 22-6 Magnitude Criteria

Magnitude of impact	Description
High	High exposure or scale; long-term duration; continuous frequency; severity predominantly related to mortality or changes in morbidity (physical or mental health) for very severe illness/injury outcomes; majority of population affected; permanent change; substantial service quality implications.
Medium	Low exposure or medium scale; medium-term duration; frequent events; severity predominantly related to moderate changes in morbidity or major change in quality-of-life; large minority of population affected; gradual reversal; small service quality implications.

Low	Very low exposure or small scale; short-term duration; occasional events; severity predominantly related to minor change in morbidity or moderate change in quality-of-life; small minority of population affected; rapid reversal; slight service quality implications.
Negligible	Negligible exposure or scale; very short-term duration; one-off frequency; severity predominantly relates to a minor change in quality of-life; very few people affected; immediate reversal once activity complete; no service quality implication.

Sensitivity

22.5.4.4 The sensitivity of a receptor is typically indicated by the following factors:

- Its social, economic, or environmental **value** in relevant local, regional or national policy;
- Its **resilience** and **capacity** to absorb change;
- Its **scarcity** value, or the availability of suitable alternative resources;
- The extent to which the local community **depend** on it.

22.5.4.5 **Table 22-7**Table 22-8 sets out factors characterising sensitivity for human health as per IEMA (2022). The table informs the professional judgement on scoring high, medium, low, or negligible sensitivity.

Table 22-7 Sensitivity criteria

Sensitivity of receptor	Description
High	High levels of deprivation (including pockets of deprivation); reliance on resources shared (between the population and the project); existing wide inequalities between the most and least healthy; a community whose outlook is predominantly anxiety or concern; people who are prevented from undertaking daily activities; dependants; people with very poor health status; and/or people with a very low capacity to adapt.
Medium	Moderate levels of deprivation; few alternatives to shared resources; existing widening inequalities between the most and least healthy; a community whose outlook is predominantly uncertainty with some concern; people who are highly limited from undertaking daily activities; people providing or requiring a lot of care; people with poor health status; and/or people with a limited capacity to adapt.
Low	Low levels of deprivation; many alternatives to shared resources; existing narrowing inequalities between the most and least healthy; a community whose outlook is predominantly ambivalence with some concern; people who are slightly limited from undertaking daily activities; people providing or requiring some care; people with fair health status; and/or people with a high capacity to adapt.

Negligible	Very low levels of deprivation; no shared resources; existing narrow inequalities between the most and least healthy; a community whose outlook is predominantly support with some concern; people who are not limited from undertaking daily activities; people who are independent (not a carer or dependant); people with good health status; and/or people with a very high capacity to adapt.

Significance

22.5.4.6 Determining the significance of effects is a two-stage process that involves defining the magnitude of the impacts and sensitivity of the receptors. The assessment is completed according to the matrix presented in Table 22-8 below**.** Effects that are assessed as 'major' or are considered to be 'significant' in EIA terms. Where effects are assessed to be 'moderate' and 'potentially significant' in EIA terms, professional judgement is applied to determine whether they are significant or not significant.

Table 22-8: Significance matrix

		Sensitivity of Receptor/Receiving Environment to Change/Effect			
		Negligible	**Low**	**Medium**	**High**
Magnitude of Change/ Effect	**Negligible**	Negligible (Not Significant)	Negligible (Not Significant)	Negligible (Not Significant)	Negligible (Not Significant)
	Low	Negligible (Not Significant)	Negligible (Not Significant)	Minor (Not Significant)	Minor (Not Significant)
	Medium	Negligible (Not Significant)	Minor (Not Significant)	**Moderate** (Potentially Significant)	**Moderate** (Potentially Significant)
	High	Negligible (Not Significant)	Minor (Not Significant)	**Moderate** (Potentially Significant)	**Major** (Significant)

22.6 BASELINE CONDITIONS

22.6.1 CURRENT BASELINE

Population and demographics

22.6.1.1 The population of the Western Isles recorded in the 2022 Census is 26,140 (NRS, 2022). Lewis and Harris are the most populous islands in the archipelago with 19,680 inhabitants. The majority of residents live in rural settlements with a significant proportion concentrated in Stornoway, the only

major town. The Western Isles has seen a notable decrease in population over the past decade, particularly among children and working-age adults, resulting in a demographic profile that is older than the Scottish average. The population is predominantly White Scottish/British, with limited ethnic diversity compared to national figures. Gaelic language skills are much more prevalent here than elsewhere in Scotland, especially in the West Side communities.

22.6.1.2 Rates of physical disability and long-term health conditions are higher than the national average, reflecting the higher proportion of older residents. Economic activity is slightly above the Scottish average, but there is a greater tendency toward self-employment and part-time work, with incomes often supplemented by crofting or other traditional activities. While the area is less diverse overall, it is marked by strong community ties, a rich cultural heritage, and higher levels of social capital and mutual support. Further details are provided in **Appendix 6.1, Volume 2c**.

Religion

22.6.1.3 **Table 22-9**Table 22-9 shows the proportion of the population by religion. Lewis and Harris (39.2%) and the Western Isles (35.3%) have a higher proportion of residents who describe their religion as Church of Scotland than the Scottish average (20.4%). In the West Side SSA, 36.2% describe their religion as Church of Scotland, while in the Stornoway SSA the figure is 42.9%, more than twice the national average.

22.6.1.4 Across the SSAs, Lewis and Harris and the Western Isles, there are lower than average proportions of residents who state they have no religion, and lower than average proportions of residents who belong to other religions. In the SSAs and Lewis and Harris there are also lower than average proportions of residents who are Roman Catholic, at 4.3% in the Stornoway SSA, 2.9% in the West Side SSA, and 3.6% in Lewis and Harris, compared with 12.1% for the Western Isles and 13.3% for Scotland.

Table 22-9: Religion (%)

Religion	Stornoway SSA	West Side SSA	Lewis and Harris	Western Isles	Scotland
Church of Scotland	42.9	36.2	39.2	35.3	20.4
Roman Catholic	4.3	2.9	3.6	12.1	13.3
Other Christian	14.3	22.7	19	16.2	5.1
Buddhist	0.2	0.2	0.2	0.2	0.3
Hindu	0.2	0	0.1	0.1	0.6
Jewish	0	0	0	0	0.1
Muslim	1.1	0	0.3	0.2	2.2
Sikh	0	0	0	0	0.2
Pagan	0.6	0.6	0.5	0.5	0.4
Other religion	0.3	0.4	0.3	0.3	0.2
No religion	32.1	30.8	31.6	29.9	51.1
Religion not stated	4.7	6	5.2	5.1	6.2

Source: NRS, 2024

22.6.1.5 The SSAs, Lewis and Harris and the Western Isles also record higher than average proportions of residents who describe their religion as 'other Christian'. This is particularly the case in the West Side SSA, where 22.7% of residents are recorded as 'other Christian' compared with 5.1% nationally. It is likely that this reflects the local importance of the Free Church of Scotland, formed following the Disruption of 1843 which split the Church of Scotland.

22.6.1.6 The church (both Church of Scotland and Free Church of Scotland) has a lasting influence on life on Lewis, particularly regarding Sabbath observance. Historically, no work or recreational activities were allowed on Sundays. Until recently, this was reflected in the closure of shops, the suspension of public transportation, and restrictions on leisure activities.

22.6.1.7 Many church services in Lewis are conducted in Scottish Gaelic which has helped preserve the language. The psalm singing tradition, where unaccompanied singing of Gaelic psalms is performed in a unique, emotive style, is also a significant cultural and religious practice that is still observed in some congregations.

Community health and wellbeing

22.6.1.8 **Table 22-10** sets out Census data on self-reported general health. In general, across Lewis and Harris and the Western Isles there are slightly higher proportions of residents who report their health as good or very good, and slightly lower proportions of residents who report their health as bad or very bad. This is not the case in the SSAs, where the proportions of residents reporting their health as good or very good are below the local and national averages. There are also higher proportions of residents describing their health as bad or very bad.

Table 22-10 Self-reported general health

Self-reported general health	Stornoway SSA	West Side SSA	Lewis and Harris	Western Isles	Scotland
Very good	47.9	45.8	49	48.7	48
Good	28	29.1	28.5	29.2	30.9
Fair	16.4	17.5	15.8	15.7	14.2
Bad	5.8	6	5.2	4.9	5.3
Very bad	1.9	1.7	1.6	1.5	1.6

Source: NRS, 2024

22.6.1.9 **Table 22-11** sets out Census data on long-term health conditions. This shows that the proportion of residents who do not have a long-term health condition is lower in both SSAs than the local and regional averages. While the proportion of residents with mental health conditions is lower than the national average in both Stornoway SSA and the West Side SSA, there are higher than average rates of residents with physical disabilities and with long-term illness, disease or conditions. A similar pattern is recorded across Lewis and Harris and the Western Isles. There are also higher than

average proportions of residents who are D/deaf or partially hearing impaired, or blind or partially vision impaired, possibly reflecting the older age profile of the population.

Table 22-11: Long-term health condition (%)

Long-term health condition	Stornoway SSA	West Side SSA	Lewis and Harris	Western Isles	Scotland
D/deaf or partially hearing impaired	8.2	10.3	8.6	8.5	7.1
Blind or partially vision impaired	3.2	2.8	2.9	3	2.5
Full/partial loss of voice or difficulty speaking	0.4	0.3	0.3	0.3	0.3
Physical disability	11.4	12.2	10.6	10.2	9.7
Mental health condition	9.9	7.3	8.3	8	11.3
Long-term illness, disease or condition	23.2	23.2	22.4	22.3	21.4
None of the above	43.8	43.8	46.9	47.7	47.6

Source: NRS, 2024

22.6.1.10 Despite higher rates of health conditions and poorer self-reported general health, other self-reported measures of wellbeing in the Western Isles are among the highest in the UK. According to ONS data on sub-national population indicators (ONS, 2022), a number of indicators of wellbeing are more positive in the Western Isles than the Scottish average, at a statistically significant level. These indicators include: male and female healthy life expectancy; life satisfaction; feeling life is worthwhile; happiness; and anxiety.

22.6.1.11 Between 2021 and 2023, life expectancy figures (ONS, 2024) show a slight regional variation between Scotland/*Alba* overall and the Western Isles. In Scotland/*Alba*, male life expectancy was 76.8 years, while female life expectancy reached 80.8 years. In comparison, the Western Isles recorded a slightly lower life expectancy for males at 76.4 years, but a higher figure for females at 81.2 years. These differences may reflect regional health determinants, lifestyle factors, and access to healthcare services. Importantly, health life expectancy (the number of years spent in good health) in the Western Isles was reported as 67 years for males which is seven years above the national average. Health life expectancy for females is 64 years (NHS Western Isles, 2025).

22.6.1.12 Data from the Community Planning Outcomes Profile (ScotPHO, 2024) suggests that in the Western Isles there is a generally higher level of wellbeing among the population, with above average health and life-expectancy, low crime and safety statistics, high levels of employment, and above average attendance and attainment among school age children.

22.6.1.13 Appealing natural landscapes have been linked to positive impacts on wellbeing, reducing stress and stimulate positive emotions (Plymouth Marine Laboratory, 2015. This could also support the higher-than-average levels of wellbeing.

22.6.1.14 There are low reported levels of health-related problems and limiting long-term illness however, the indicators reveal that there are challenges associated with lifestyle factors. The rate of

alcohol-related hospital admissions in the Western Isles is 959.45 per 100,000, compared with 611.05 per 100,000 for Scotland. There is also an issue with smoking prevalence amongst 16 – 34-year-olds with 33% smoking on the Western Isles, more than double the national rate (16%). Obesity rates are also higher than the national average, 76% of adults in the Western Isles are either overweight, obese or severely obese compared to 69% of adults in Scotland.

22.6.1.15 Despite generally high levels of wellbeing, the suicide rate in the Western Isles is the sixth highest in Scotland, at 18.1 per 100,000 population in 2019-2023. For comparison, the average across Scotland in 2023 was 14.6 per 100,000. The rate is considerably higher among males, at 29.3 per 100,000 for males in the Western Isles, compared with 6.7 per 100,000 for females (NRS, 2024). This appears to contradict the health and wellbeing data discussed above, and it is possible that the data is skewed by the small population in the Western Isles. Alternatively, it may be reflective of other cultural factors including the statistically higher level of hospital admissions due to alcohol, as alcohol is a risk factor for increased likelihood of death by suicide (Zero Suicide Alliance, 2024).

22.6.1.16 Focus group participants reported a perception that previous boom-and-bust cycles of economic development in the Highlands have disproportionately affected women and girls. Respondents described local narratives of past periods of rapid in-migration of predominantly male workers, which were believed to have led to adverse outcomes including increased rates of sexually transmitted infections (STIs), teenage pregnancy followed by local women forming relationships with transient workers and subsequently moving away from the Island. There is no clear published evidence to support the extent to which these negative impacts occurred or are perceived community impacts.

22.6.1.17 Data from the Scottish Cardiac Audit Programme (Scotland P.) provides a standardised rate for incidences of coronary heart disease rate per 100,000 population. The standardised rate for the Western Isles is 332 incidences per 100,000 population, which is slightly greater than the national average of 326 incidences.

22.6.1.18 The 2021 Scottish Household Survey (Survey, 2021) provides insight into physical activity levels across the country, including the Western Isles. Locally, participation in sport over the previous month was slightly below the national average, with 53% of respondents reporting participation in sporting activity, compared to 58% across Scotland/*Alba*. Despite a slightly lower participation rate, usage of local sports facilities in the Western Isles was in line with national figures. Satisfaction with these facilities was higher in the Western Isles, with 51% of respondents stating they were very or fairly satisfied, compared to 46% nationally. This suggests that while participation is slightly lower, the quality and accessibility of local facilities are viewed positively by the community.

Wider determinants of health

22.6.1.19 Health and wellbeing is influenced by several wider determinants of health. These determinants reflect influences from society and a change in a determinant can alter risk factors for

certain health outcomes. Wider determinants of health include living conditions, employment and income, education and skills, community network, access to services, and systemic issues (food insecurity, fuel poverty). Key health determinants are considered below.

Social isolation

22.6.1.20 Living alone and social isolation can be a cause of both physical and mental health problems (CDC, 2024). One of the main causes is feeling marginalised or disconnected from your surroundings. The Western Isles Health Board area has the second highest proportion of single-person households among Scotland's/*Alba* 14 Health Boards. It is also considerably greater than the national average, (41% and 36% respectively). This is further exacerbated in the older demographics, with every age group older than 65 being above the national average.

Crime

22.6.1.21 The Western Isles as a whole is a low crime area, with a total of 572 recorded crimes in the year 2024-25. This equates to a rate of recorded crime of 220 crimes per 10,000 population, compared with the national rate of 545 crimes per 10,000 population for Scotland/*Alba*. Total crime in the Western Isles fell by 9% between 2023-24 and 2024-25, and by 12% over the decade between 2015-16 and 2024-25. The largest share of crimes in 2024-25 were non-sexual crimes of violence (which accounted for 21.5% of all crimes) and crimes against society (19.1% of all crimes) (Scottish Government, 2025). Lower crime rates can help to explain why 87% of adults rate the Western Isles as a very good place to live, compared to almost 55% nationally (Scot PHO, 2024)

Employment

22.6.1.22 Both Lewis and Harris/*Leòdhas agus Na Hearadh* and Western Isles have below national levels of residents with a degree level qualification, coupled with a higher proportion of residents with no qualifications. There is also a below average level of unemployment in Lewis and Harris/*Leòdhas agus Na Hearadh* and the Western Isles.

Income

22.6.1.23 Wages contribute to individual well-being in terms of personal finance, wages within the offshore wind industry can be substantially above the average salary (Plymouth Marine Laboratory, 2015). Earnings data shows that median pay is below the national average for the Western Isles (ONS, 2024). The Local Level Household Income Estimates (LLHIE) (Consultancy, 2018) provides a median household weekly income at data zone level. This analysis shows that the median household income is greater in Lewis and Harris/*Leòdhas agus Na Hearadh* compared to the Western Isles as a whole, but still below the national average. There is a wide range of disparity across the data zones in Lewis and Harris/*Leòdhas agus Na Hearadh* with a £250 per week difference between the lowest and highest average household incomes.

Deprivation

22.6.1.24 The SIMD is a relative measure of deprivation at data zone level across seven 'domains'. These are income, employment, education, health, access to services, crime, and housing. **Figure 6.2: Socio-economics Island and Smaller Study Areas, Volume 2b** shows SIMD data at data zone level for the Western Isles.

22.6.1.25 The data shows that there are varying degrees of deprivation across the isles of Lewis and Harris/*Leòdhas agus Na Hearadh*, with the electoral ward of An Taobh Siar agus Nis within the SSA having the highest proportion of residents living in income deprivation (12.0%) with Loch a Tuath directly adjacent having the lowest proportion of residents living in income deprivation (6.3%) (Scottish Government, 2020). There are pockets of deprivation within Stornoway/*Steòrnabhagh*, with parts of the town centre falling into the 30% most deprived areas in Scotland/*Alba* in terms of income and employment.

Children in low-income households

22.6.1.26 Data from the DWP (DWP, 2025) highlights the proportion of children living in relative low-income families[1]. In 2024, 13% of children in Lewis and Harris/*Leòdhas agus Na Hearadh* were living in relative low-income families. This was marginally lower than the Western Isles (13.2%), however both were lower than the national average (16.3%). Despite this, there is great disparity across Lewis and Harris/*Leòdhas agus Na Hearadh* displaying a range from 8.6% to 16.9% across the wards, with two wards having a greater proportion of children in relative low-income families than the national average.

Fuel poverty

22.6.1.27 In April 2022, Energy Action Scotland completed a mapping exercise showing the Western Isles local authority area to have the highest level of fuel poverty in Scotland/*Alba*, at 57%. It was stated that the reasons the Western Isles is the most fuel poor part of the country are the inclement weather conditions, dependence on electric heating and low levels of energy efficiency in homes (Energy Action Scotland, 2022).

Healthcare facilities

22.6.1.28 **Appendix 6.1, Volume 2c** provides details of community services and facilities on Lewis/*Eilean Leòdhais*, including education, health and social care, childcare, places of worship, and recreational facilities. Much of this social and community infrastructure is concentrated in Stornoway/*Steòrnabhagh* including, for example, the WIH, which provides accident and emergency (A&E) services on the island. Other services and facilities are located in smaller settlements around

[1] Relative low income is defined as a family in low income Before Housing Costs in the reference year. A family must have claimed Child Benefit and at least one other household benefit (Universal Credit, tax credits or Housing Benefit) at any point in the year to be classed as low income in these statistics.

the island, including GP surgeries, care homes, and community centres, which often serve a range of functions.

22.6.1.29 The latest available data (2022) (Scotland P. on healthcare facilities shows that there were nine practices on the Western Isles serving an average of 3,176 people per practice. This ranks as the third lowest out of all local authorities in Scotland/*Alba*. Based on the number of GPs working on the island, the GP to patient ratio is one GP to 848 patients, compared to 1 to 1,132 nationally. All the practices are accepting new patients, however, to become a permanent patient you need to be living in the area for over three months. Practices in the Western Isles are serving the second highest proportion of patients over the age of 75.

22.6.1.30 A survey commissioned by Highlands and Islands Enterprise (HIE) in 2022 found that 82% of households in the Western Isles have access to a GP surgery permanently located within a 20-minute drive of their local area. However, the average travel time to a hospital providing A&E services in the Western Isles is 45.2 km, considerably further than the national average of 14 km (Consumer Data Research Centre (CDRC), n.d). While the Western Isles Hospital has over 200 beds and provides A&E services, for more specialist treatment patients are generally transported to Inverness or Glasgow, making air links to those locations essential for healthcare provision.

22.6.1.31 Whilst the evidence shows availability of health facilities, there are also signs that the current health care provision is facing pressures, including in relation to recruitment. It was noted that 48.7% of staff in post were over 50 and 13.85% of staff are over 60. The reduction in working aged population has already significantly impacted NHS Western Isles (Isles, NHS Western Isles , 2020). NHS Western Isles noted that overspend in 2019/20 was in part due to the requirement to use agency staff to enable services to be provided across the island.

22.6.1.32 A key theme to emerge from the focus groups and interviews was the pressure on service provision in Lewis/*Eilean Leòdhais* and the Western Isles. The challenges faced by service providers were consistently acknowledged by almost all focus groups and interview participants as being at capacity, struggling to recruit staff or lacking funding to deliver the desired level of service. The current challenges on availability of dentists and dental care were particularly acknowledged.

Key sensitivities and vulnerable groups

22.6.1.33 In Scotland, consideration of vulnerable groups must align with the Equality Act 2010, which establishes nine protected characteristics: age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex, and sexual orientation. These characteristics are central to promoting equality and preventing discrimination, ensuring that health impacts are assessed fairly across all population groups. Certain individuals and communities may experience disproportionate health risks or barriers to accessing services due to these characteristics, compounded by socio-economic factors and geographic inequalities.

22.6.1.34 Data presented in the baseline suggests the following vulnerable groups:

- **Age:** There is a higher prevalence of older people who are more likely to experience ill health, social isolation and loneliness. Those living alone are more susceptible to increased disconnection from place, this is prevalent amongst the elderly population which could lead to widening inequalities amongst these groups.
- **Disability:** The assessment assumes disabled people and those with limiting long-term conditions may experience disproportionate effects. Across Lewis and Harris Levels of hearing impairment are slightly higher (8.6%) than the Scotland average (7.1%), and physical disability is also more prevalent (10.6% compared with 9.7% nationally), reflecting a population with above-average mobility and accessibility needs.
- **Religion:** Lewis and Harris (39.2%) and the Western Isles (35.3%) have a higher proportion of residents who describe their religion as Church of Scotland than the Scottish average (20.4%). Focus groups identified concern regarding the potential impact on cemeteries in coastal areas, including impacts on access, funeral ceremonies and the experience of regular visits to family.

22.6.1.35 In addition to vulnerable groups, the following key sensitivities were identified in the baseline.

- **High alcohol-related hospital admissions, indicate substance misuse as a health concern.** Higher rates of substance misuse may influence sensitivity of the local population to health impacts as they indicate a poorer physical baseline, increased rates of mental health issues, reduced resilience to change, and a greater demand on healthcare and social services. Areas with higher rates of substance misuse often have overlapping deprivation, housing, and social cohesion issues.
- **Below average level of higher education attainment and below average median income.** Lower incomes are associated with a higher prevalence of chronic illnesses, poorer food security and energy and fuel poverty. Such economic disadvantage may amplify impacts such as disruption in access to services. Lower levels of education often correlate with reduced health literacy, making it difficult for individuals to understand and act on health-related information. Lower levels of education may also influence communities' ability to engage with Project consultation processes and make informed choices to protect their health. These individuals may also benefit less from positive health determinants associated with the Offshore Project such as employment.

22.6.2 FUTURE BASELINE

22.6.2.1 According to the latest mid-year population projections, the population of the Western Isles is projected to decrease by 14.5% from 2018 to 2043 (NRS, 2020). This is in contrast to the national trend of a projected increase of 2.5%. The Western Isles already has the highest percentage of people of pensionable age in Scotland/*Alba* at 25.6% (Isles, Health Needs Assessment for the Western Isles , 2025). Between 2018 and 2043, the only age group expected to increase in the Western Isles is those of pensionable age, which could further contribute to existing pressures

associated with healthcare and recruitment. Population projections do not incorporate committed developments identified through the cumulative assessment in Section 22.13.

22.6.2.2 An ageing population affects health issues and the demand on health and care services. This could put pressure on local GP, hospital and care services, particularly in the context of a falling working-age population which could make it more difficult to recruit qualified staff. As noted above, there are already issues around recruitment in the healthcare sector: between March 2019 and October 2019.

22.7 BASIS FOR ENVIRONMENTAL IMPACT ASSESSMENT

22.7.1 MAXIMUM DESIGN SCENARIO

22.7.1.1 Assessing using a parameter-based design envelope approach means that the assessment considers a maximum design scenario whilst allowing the flexibility to make improvements in the future in ways that cannot be predicted at the time of submission of the consent applications. The assessment of the maximum design scenario for each receptor establishes the maximum potential adverse impact and as a result impacts of greater adverse significance would not arise should any other development scenario (as described in **Chapter 3, Volume 1a**) to that assessed within this chapter be taken forward in the final scheme design.

22.7.1.2 The maximum parameters and assessment assumptions that have been identified to be relevant to human health are outlined in **Table 22-13** and are in line with **Chapter 3, Volume 1a**.

Table 22-12 Maximum Design Scenario for impacts on human health

Project phase and activity/impact	Maximum Design Scenario	Justification
Construction		
Visual impacts of construction activities	As per maximum design scenario detailed in **Chapter 18, Volume 2a**.	The parameters represent the maximum influence of construction that will have potential visual effects.
Noise from construction activities	As per maximum design scenario detailed in **Chapter 19, Volume 2a**.	The parameters represent the maximum influence of construction that will have potential noise effects.
Impact of new construction worker population on local healthcare services	Construction workforce and phasing Construction phase of up to 5 years for the Offshore Project. Offshore construction within the Turbin Area would be April to October	Represents the maximum duration of construction works and the maximum number of workers required to construct the Offshore Project, and indicates the scale of likely

	only (excluding HDD installation works). Offshore Construction workforce of up to approximately 400 at peak. Majority of offshore construction workforce to be accommodated on offshore vessels. Work pattern of 24 hours a day, 7 days a week.	demand for healthcare services on the Isle of Lewis/*Eilean Leòdhais*.
Operation and Maintenance		
Noise impacts from operational turbines	As per maximum design scenario detailed in **Chapter 19, Volume 2a.**	The maximum assessment assumptions represent the maximum noise levels that could potentially affect human health.
Visual changes to seascape and coastal views	As per maximum design scenario detailed in **Chapter 18, Volume 2a**.	The maximum assessment assumptions represent the maximum visual changes that could potentially affect human health.
Impact of new population on healthcare services.	**Operational workforce** Operational life of up to 35 years Operation and maintenance workforce of 80-120. Workers required for routine operation and maintenance activities to be accommodated on a SOV or transported using CTVs. Some operational employment may be taken up by people from outside the Western Isles who would require housing on Lewis or Harris/*Leòdhas agus Na Hearadh*. Work pattern of 24 hours a day.	Represents the maximum number of workers required to operate the Offshore Project, and the scale of likely demand for healthcare services on the Isle of Lewis/*Eilean Leòdhais,*.

22.7.2 EMBEDDED MITIGATION MEASURES

22.7.2.1 As part of the Offshore Project design process, a number of embedded mitigation measures have been adopted to reduce the potential for impacts on community receptors, and these have evolved over the development process as the EIA has progressed and in response to consultation.

22.7.2.2 The embedded mitigation measures also include those that have been identified as good or standard practice and include actions that would be undertaken to meet existing legislation

requirements. As there is a commitment to implementing the embedded mitigation, and also to various standard sectoral practices and procedures, they are considered inherently part of the design of the Offshore Project and are set out in this EIAR.

22.7.2.3 **Table 22-13**Table 22-13 sets out the relevant embedded mitigation measures within the design and how these affect the human health assessment.

Table 22-13 Embedded mitigation measures relevant to human health

ID	Environmental measure proposed	Project phase measure introduced	How the environmental measures will be secured	Relevance to human health
M019	A final Offshore Environmental Management Plan (OEMP) will be developed prior to commencement of construction (building on Outline Offshore EMP, Volume 3) in compliance with legislative requirements and/or best practice standards and guidance and adhered to.	Pre-Construction, construction	Secured in the Section 36 Consent and/or Marine Licence via the condition for an OEMP to be submitted to MD-LOT for approval.	The OEMP will set out measures which will reduce the potential for human health effects
M040	Due regard will be given to landscape and visual design principles in the Design Specification Layout Plan post consent, with consideration of the seascape, landscape and visual impacts of the Offshore Project on the NSA. The DSLP will be shared with and approved by MD-LOT prior to construction commencing.	Pre-Construction, construction	To be secured through a condition of the Section 36 consent and/or Marine Licence.	Mitigation through design will reduce the potential negative wellbeing impact of changes to visual and landscape.
M041	The offshore construction workforce to be accommodated on vessels, with the exception of certain limited circumstances such as crew change over and leave, to reduce additional	Construction	To be secured through a condition of the Section 36 consent and/or Marine Licence.	Relevant to the assessment of effects on health care facilities.

ID	Environmental measure proposed	Project phase measure introduced	How the environmental measures will be secured	Relevance to human health
	demand for housing/tourist accommodation on Lewis/*Eilean Leòdhais*. Medical facilities to be provided on board vessels to treat minor injuries/illness and reduce additional pressure on existing services			
M042	Project to work with key stakeholders and service providers to understand pressure points on existing services and on storage/port facilities on Lewis, and charter vessels and/or flights to transport crew and materials where required to avoid creating excess pressure and potentially provide additional capacity. Large components to be transported by specialist vessels via private charter. Potential for collaborative approaches with other developers, including through the Renewable Energy: Major Developments Forum	Pre-Construction, Construction, Operation and Maintenance and Decommissioning	To be secured through a condition of the Section 36 consent and/or Marine Licence.	Working with key project stakeholders and other developers can reduce additional pressure on existing healthcare services.
M044	The Project is committed to the establishment of a Community Panel (subject to agreed community	Construction, operation and maintenance	To be secured through a condition of the Section 36	Community engagement and mechanisms for local perspective can reduce

ID	Environmental measure proposed	Project phase measure introduced	How the environmental measures will be secured	Relevance to human health
	participation), comprising a range of community representatives with relevant experience and local knowledge. The purpose of the panel will be to ensure that local voices and perspectives can inform delivery of the Project as it progresses. It is proposed that the panel would be in place prior to the commencement of major construction activities and would be maintained throughout construction and commissioning. During operation, the Project will continue to engage with local communities and will provide opportunities for local residents to contact the Project team, including through dedicated resources within the operation and maintenance team with responsibility for community engagement.		consent and/or Marine Licence.	potential human health impacts.

22.8 ASSESSMENT OF EFFECTS: CONSTRUCTION PHASE

22.8.1 VISUAL IMPACTS OF CONSTRUCTION ACTIVITIES

22.8.1.1 There is potential for visual impacts arising from construction activities, including the presence of jack-up vessels and/or heavy lift vessels during the construction phase for the installation of foundations substructures and WTGs; wind farm service vessels and offshore accommodation vessels; and partially constructed offshore elements; all of which may combine to alter seaward views from the coast. There is also potential for nighttime visual impacts during construction associated with aviation and navigation lighting, which may be visible from the coast.

22.8.1.2 The impact of construction-related visual change is psychological. Changes to familiar seaward views can reduce visual amenity and the restorative value residents may derive from their surroundings, which in turn may contribute to increased stress, annoyance, and reduced mental wellbeing. In a rural island setting such as the Isle of Lewis/*Eilean Leòdhais*, where the coast and open sea views are a defining part of everyday life and are strongly associated with perceived naturalness and remoteness, temporary industrial features may be experienced as a more pronounced intrusion than in more developed settings.

22.8.1.3 Visual change can also affect wellbeing through "sense of place" pathways. Residents often develop emotional bonds and identity linked to local landscapes and seascapes (place attachment); when those valued characteristics are altered, even temporarily, some people may experience a reduced sense of place attachment and reduced perceived restoration from familiar environments, which can contribute to lower wellbeing.

22.8.1.4 Where views and landscape change are contentious, projects can also become a focus for local disagreement, leading to community tension or polarisation. This can affect wellbeing indirectly by increasing stress and, for some residents, discouraging participation in community life or reinforcing feelings of isolation, an effect that can be particularly pronounced in small, close-knit communities.

22.8.1.5 The key health outcomes associated with this pathway are mental health and wellbeing. The receptors are the resident population, vulnerable groups, and individuals with pre-existing mental health conditions.

Magnitude

22.8.1.6 **Chapter 18, Volume 2a**, indicates that toward the end of the construction phase large scale and modern technology of such structures and vessels will contrast with the strong sense of naturalness and remoteness experienced in views from the coastline.

22.8.1.7 This will impact residents in communities at relatively short distances from the nearest turbines such as Shawbost/*Siabost*, Dalbeg/*Dhàil Beag*, Dalmore/*Dail Mhor*, Bragar/*Bhràdhagair*, Arnol/*Àrnoil*, the *Borve*/Borgh–Shader/*Siadar an Rubha* area as well as Barvas/*Barabhas*.

22.8.1.8 For these residential receptors, the presence of large construction and installation vessels and partially constructed offshore components has the potential to create a noticeable, industrial influence in seaward views, contrasting with the baseline character of a rural island setting where views are strongly associated with open seascapes, perceived naturalness and remoteness, and a generally low level of man-made visual influence.

22.8.1.9 The magnitude of change is expected to vary geographically, residents are more likely to experience continuous exposure along open, simpler stretches of coastline and less exposure where the coastline is more indented and visually contained.

22.8.1.10 The construction period will last five years, however effects are likely to be greatest towards the latter part of the construction period when offshore works are at the peak and most visually complex.

22.8.1.11 Although the scale of the structures and vessels will contrast with the strong sense of naturalness and remoteness experienced in views from the coastline, the SLVIA also recognises that the expansive seascape context and separation distance from parts of the coast can partially moderate the overall magnitude of change in some views. As a precaution, the SLVIA assessment is based on clear-visibility (worst-case) viewing conditions and does not reduce effects to reflect how frequently such conditions occur.

22.8.1.12 Based on the criteria set out Table 22-6 Magnitude Criteria, the magnitude of impact is predicted to be **Low**. The change in visual character will be noticeable and result in a moderate change to quality of life. However, the effect is constrained to the short-term duration of the peak construction period. Furthermore, a small proportion of the population will be in the most exposed coastal areas with reliance on coastal views for daily amenity.

Sensitivity

22.8.1.13 The sensitivity of the resident population receptor in the SSA is considered to be **Medium** this reflects the value placed on the coast and landscape. While the population generally experiences good mental health compared to national averages, access to mental health services is limited, which may reduce resilience to adverse impacts. Stakeholder engagement and focus groups identified concerns with visual impacts including association of the landscape with sense of wildness, naturalness and artistic inspiration. The assessment of significance has also considered the context of a highly rural island setting.

22.8.1.14 Further, vulnerable population receptors in the SSA are likely to be more sensitive based on higher prevalence of ill health and social isolation but sensitivity is still assessed as **Medium**.

Significance

22.8.1.15 Given that the magnitude of impact is considered **Low** and the sensitivity of the receptor is considered **Medium**, the significance of effect is considered **Minor (Not Significant)**. The effect is characterised as being **adverse in direction**.

Further environmental mitigation and residual effects

22.8.1.16 No additional human health mitigation is considered necessary because the likely effects in the absence of further mitigation are not significant in EIA terms.

22.8.2 INCOMING CONSTRUCTION WORKFORCE

22.8.2.1 There is potential for population changes, as a result of an influx of construction workers, to increase pressure on healthcare services. The impact of this is longer waiting times for healthcare appointments and reduced availability routine care. The key health outcome associated with this is general health. The receptors are the resident population and vulnerable groups.

Magnitude

22.8.2.2 **Chapter 6, Volume 2a** suggests that a large portion of the construction workforce will come from out of the Isle of Lewis. These workers may require access to primary and secondary health care services. The temporal scope for this effect is the duration of the construction period, expected to last for up to five years. The workforce requirements will be phased with distinct peaks in later phases. Most offshore construction will occur between April and October, limiting the potential for the effect to a seven-month period outside of winter months. The phasing of the workforce will reduce pressure on services and will also reduce the number of workers who would be able to become registered at GP and dental practices.

22.8.2.3 As set out in **Table 22-13**, specifically M041, the offshore construction workforce will be accommodated on vessels, with the exception of certain limited circumstances such as crew change over and leave. Medical facilities will be provided on board vessels to treat minor injuries/illness and reduce additional pressure on existing services. This embedded mitigation and phasing of the construction workforce result in an assessment of **Negligible** magnitude for the resident population and vulnerable groups.

Sensitivity

22.8.2.4 The sensitivity of the resident population receptor is considered to be **Medium**. The population has better overall general health compared to national averages and comparative life expectancy to the national average. However, certain health behaviours such as the prevalence of alcohol consumption and smoking are worse in the Western Isles than the averages for Scotland/*Alba* exacerbating existing pressure on healthcare services. Access to healthcare services is mixed with many people having to travel significant distances to access emergency health services and certain specialist treatments which require travel to Inverness or Glasgow. There are also emerging staffing

issues as healthcare staff are reaching retirement age and the working age population has reduced. Staffing pressures are affecting GP support capacity and consultees highlighted specific capacity challenges for dental care.

22.8.2.5 Vulnerable population receptors in the SSA are likely to be more sensitive based on higher prevalence of long-term health conditions, physical disabilities, sensory impairments, alcohol misuse, and social isolation and loneliness but overall sensitivity on vulnerable population is also **Medium.**

Significance

22.8.2.6 Given that the magnitude of impact is considered **Negligible** and the sensitivity of the receptor is considered **Medium**, the significance of effect is considered **Negligible (Not Significant)**. The effect is characterised as being **adverse in direction**.

Further environmental mitigation and residual effects

22.8.2.7 No additional human health mitigation is considered necessary because the likely effects in the absence of further mitigation are not significant in EIA terms.

22.8.3 NOISE FROM CONSTRUCTION ACTIVITIES

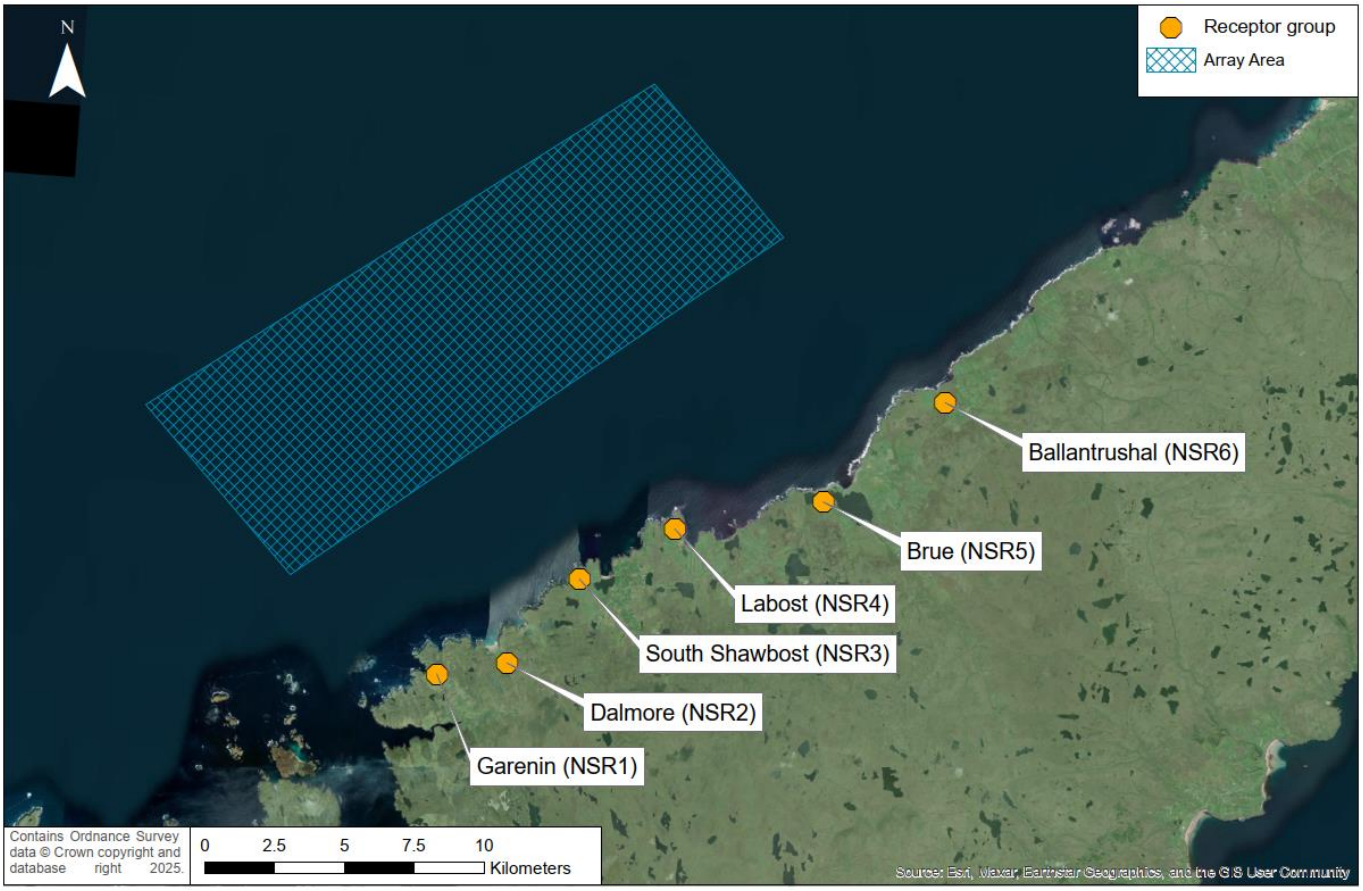
22.8.3.1 Noise generated during construction activities, particularly piling, has the potential to affect human health through susceptibility to annoyance, stress, and sleep disturbance. These effects are most relevant for **residential population receptors** along the northwest coast of the Isle of Lewis/*Eilean Leòdhais*, where the Offshore Project is closest to shore and where background sound levels can be relatively low during calmer conditions, increasing the potential for noticeable changes in the acoustic environment.

22.8.3.2 Construction noise sources are expected to vary by activity and location. For the offshore elements, the **Chapter 19, Volume 2a** identifies offshore percussive piling (foundation installation) as the principle construction-phase airborne noise source. Noise associated with construction vessel movements was scoped out for onshore receptors because most vessel traffic would occur far from the shoreline.

22.8.3.3 The nearest assessed residential receptor groups in **Chapter 19, Volume 2a** span from Garenin/*Na Gearrannan* in the southwest to Ballantrushal/*Baile an Truiseil* in the northeast, representing communities along the west coast with potential to experience the greatest airborne noise effects from offshore works due to proximity.

22.8.3.4 For each receptor group, a representative receptor location is selected for assessment. The selected receptor is representative of all the NSRs in the group. The selected receptor locations are shown in in **Plate 22-1.**

Plate 22-1: Offshore Airborne Noise receptor group locations



22.8.3.5 The primary health outcomes relate to mental health and wellbeing, with vulnerable groups with pre-existing health conditions at greater risk of adverse impacts.

Magnitude

22.8.3.6 The temporal scope for this effect is throughout the construction period with the noise effects associated with offshore construction expected to occur in distinct phases with the greatest airborne noise effects linked specifically to percussive piling activities.

22.8.3.7 Based on **Chapter 19, Volume 2a**, the predicted impact magnitudes range from **Slight to High**, depending on time of day. Magnitude is high at all NSRs at night. This assessment is based on worst-case-scenario of propagation conditions and adoption of conservative parameters for piling source levels.

22.8.3.8 Mitigation measures, including an Offshore Piling Noise Management Plan are expected to reduce magnitudes to **Negligible or Minor** at all receptors. The Offshore Piling Noise Management Plan is expected to reduce noise levels at residential receptors by actively managing when and how piling occurs, and by reducing the likelihood of exceedances during the most sensitive periods

22.8.3.9 Therefore, given that the magnitude of change to noise levels is negligible or minor with effective mitigation in place, and the phased nature of construction works, the overall magnitude of impact on human health is considered **Low.**

Sensitivity

22.8.3.10 The resident population near the construction works is considered to have **Medium** sensitivity. This is because the community exhibits some characteristics of moderate vulnerability, limited alternatives for coping with environmental changes, and therefore a limited capacity to adapt. The rural setting and low baseline noise levels further increase the likelihood of annoyance and stress during construction.

22.8.3.11 Vulnerable groups, including older adults, people with chronic health conditions, and those experiencing social isolation, are also considered to have **Medium** sensitivity. These groups typically have poorer health status and have a limited capacity to adapt to environmental changes such as noise exposure.

Significance

22.8.3.12 Given that the magnitude of impact is considered **Low** with effective mitigation in place and the sensitivity of the receptor is considered **Medium**, the significance of effect is considered **Minor (Not Significant)**. The effect is characterised as being **adverse in direction**.

Further environmental mitigation and residual effect

22.8.3.13 No additional human health mitigation is considered necessary because the likely effects in the absence of further mitigation are not significant in EIA terms.

22.9 ASSESSMENT OF EFFECTS: OPERATION AND MAINTENANCE PHASE

22.9.1 NOISE IMPACTS FROM OPERATIONAL TURBINES

22.9.1.1 Noise generated during the operation and maintenance (O&M) phase, primarily from the rotation of wind turbine blades and associated turbine machinery ("wind turbine noise"), has the potential to affect human health through susceptibility to annoyance, stress and sleep disturbance, particularly where noise is perceptible at dwellings during quieter periods. These effects are most relevant for residential population receptors along the northwest coast of the Isle of Lewis/*Eilean Leòdhais*, which are the closest onshore receptors to the Offshore Project. The key health outcomes associated with this are mental health and wellbeing, primarily through annoyance or disturbance. The receptors are the resident population and vulnerable groups located near the Offshore Project.

22.9.1.2 For human health concerns specifically relating to infrasound and low frequency noise, **Chapter 19, Volume 2a** notes these are outside an ETSU-R-97 compliant assessment scope and references

evidence that typical controls on A-weighted levels are expected to provide sufficient control of low frequency effects.

Magnitude

22.9.1.3 The temporal scope for this effect is long-term, as operational noise will occur throughout the lifetime of the wind farm. In accordance with **Chapter 19, Volume 2a**, significance approach for operational noise, a significant effect would only occur where operational noise gives rise to an exceedance of the applicable noise limits; where the limits are met, effects are not significant. On this basis, and with the derived limits capable of being secured through a consent condition to ensure ongoing compliance, the predicted operational noise effect at all assessed receptors is not significant. Therefore, the overall magnitude of impact on human health is considered **Low**, as operational noise levels are unlikely to cause significant annoyance, stress, or sleep disturbance.

Sensitivity

22.9.1.4 The resident population near the Offshore Project is considered to have **Medium** sensitivity. This is because the community exhibits some characteristics of moderate vulnerability including moderate levels of deprivation and limited alternatives for coping with environmental changes and therefore limited capacity to adapt.

22.9.1.5 Vulnerable groups, including older adults, people with chronic health conditions, and those experiencing social isolation, are also considered to have **Medium** sensitivity. These groups typically have poorer health status, may require care, and have a limited capacity to adapt to environmental changes such as noise exposure. Although operational noise levels are predicted to be low, these characteristics increase susceptibility to stress or annoyance.

Significance

22.9.1.6 Given that the magnitude of impact is considered **Low** and the sensitivity of the receptor is considered **Medium**, the significance of effect is considered **Minor (Not Significant)**. The effect is characterised as being **adverse in direction**.

Further environmental mitigation and residual effect

22.9.1.7 No additional human health mitigation is considered necessary because the likely effects in the absence of further mitigation are not significant in EIA terms.

22.9.2 VISUAL CHANGES TO SEASCAPE AND COASTAL VIEWS

22.9.2.1 There is potential for visual impacts arising from the presence of large-scale, human-made elements introduced during the operational and maintenance (O&M) phase, including wind turbine generators (WTGs), the offshore substation (OSP), and occasional maintenance vessels. The extent of visibility and the residential communities most likely to experience change in seaward views is defined by the blade tip Zone of Theoretical Visibility (ZTV) presented in **Chapter 18, Volume 2a**,

with visibility concentrated along the west coast of the Isle of Lewis/*Eilean Leòdhais* between the Butt of Lewis/*Rubha Robhanais* and Mangersta/*Mangurstadh Head*, particularly within 30 km of the Turbine Area, where views are often open and uninterrupted.

22.9.2.2 Changes to visual landscapes can result in human health impacts. Research (e.g. Urban green spaces and health, Evidence Review, World Health Organization) consistently demonstrates that access to natural, uninterrupted landscapes supports mental health by reducing stress, improving mood, and fostering resilience. In the rural island context of Lewis, where coastal landscapes and expansive seaward views are strongly associated with naturalness, remoteness and everyday quality of life, the introduction of large-scale modern infrastructure has the potential to reduce the restorative value of these views for some residents and contribute to adverse wellbeing effects.

22.9.2.3 Consultation to date and focus group findings show that that changes in seascape and visual environment is a concern for residents. The main health outcome associated with this is mental health and loss of connection with place. Changes in the seascape and visual environment are most likely to affect communities within the SSA, which would be within the ZTV for the Offshore Array. The receptors are the resident population and vulnerable groups.

22.9.2.4 **Chapter 18, Volume 2a,** also assesses night-time effects associated with aviation and marine navigation lighting and highlights the potential for obtrusive light (e.g., glare/sky glow/light intrusion) to affect the experience of darkness; where visible, this may represent an additional wellbeing pathway for some residents.

Magnitude

22.9.2.5 The temporal scope for this effect is **long-term**, as the Offshore Project will remain operational for an estimated 35 years.

22.9.2.6 The spatial extent and distribution of operational visual change is evidenced by the blade tip Zone of Theoretical Visibility (ZTV) prepared for the SLVIA, which is based on the assessed Maximum Design Scenario (larger WTG type) of 44 turbines with a maximum blade tip height of 338.4. The SLVIA defines a 60 km radius study area to capture the outer limit within which significant effects could occur, noting that at longer distances the curvature of the earth and low visibility frequency reduce the ability to distinguish turbines to any significant degree.

22.9.2.7 The ZTV shows that theoretical visibility is concentrated along the west coast of Lewis, between the Butt of Lewis and Mangersta Head, and that the pattern of visibility varies with coastal character and topography: it is more extensive and continuous along the simpler, more open coastline to the north, but becomes more fragmented south of Barvas where the coastline is more indented and landform provides greater containment and screening. As a precaution, the SLVIA states that effects are assessed on a worst-case clear visibility basis and are not reduced to account for how frequently such conditions occur.

22.9.2.8 For these communities, the ZTV evidence indicates that residents are more likely to experience changes in seaward views as part of day-to-day amenity, with the scale and prominence of change varying locally depending on openness of views and the extent to which landform screens or frames visibility of the array

22.9.2.9 The SLVIA also identifies a visibility threshold around 20 km from the Turbine Area, beyond which the lower-lying eastern portions of Lewis and the east coast between the Butt of Lewis and Stornoway are outside the blade tip ZTV (i.e., no theoretical visibility).

22.9.2.10 Based on the assessment criteria set out in Table 22-6, the magnitude of change is considered **Medium.** This reflects the long-term duration of the effect (the SLVIA assumes an operational life of 35 years) and the fact that for residents living in west coast communities within the blade tip ZTV, exposure to changed seaward views is likely to be frequent as part of day-to-day amenity.

22.9.2.11 The ZTV evidence indicates that visibility is concentrated along the west coast of Lewis between the Butt of Lewis/*Rubha Robhanais* and Mangersta/*Mangurstadh Head*, with a visibility threshold around 20 km beyond which the lower-lying eastern portions of Lewis and the east coast between the Butt of Lewis and Stornoway fall outside the blade tip ZTV (no theoretical visibility). This demonstrates that exposure is geographically contained rather than affecting the whole island population, but it extends across multiple coastal settlements and therefore represents a medium scale exposure.

22.9.2.12 In terms of severity, the likely health pathway is primarily psychological (e.g., annoyance, stress and reduced wellbeing), arising from sustained change to valued coastal views in a rural island context where naturalness, remoteness and seaward vistas are central to quality of life. Long-term alteration of the visual environment for residents in ZTV-exposed communities has the potential to contribute to moderate quality-of-life effects for some individuals, rather than severe morbidity outcomes.

22.9.2.13 The SLVIA adopts a precautionary approach by assessing effects under worst-case clear-visibility conditions and does not reduce effects to reflect how frequently such conditions occur, supporting a conservative interpretation of exposure for residents in locations with open seaward views.

Sensitivity

22.9.2.14 Visual impacts can be experienced more acutely in areas where residents have strong place attachment and cultural, emotional or identity-based connections to the landscape and seascape. Place attachment can contribute to wellbeing by supporting feelings of belonging and restoration, and it can be affected where valued landscape qualities change over time. Place attachment is particularly high in remote island settings, such as the study area where the seascape and natural

views form a core part of identity and daily life. Loss of visual amenity can disrupt these connections, reducing restorative benefits.

22.9.2.15 The resident population of Lewis and Harris is considered to have **Medium** sensitivity. This reflects:

- Limited alternatives for accessing restorative environments.
- A strong cultural and emotional connection to the natural landscape, which is central to identity and wellbeing.
- Uncertainty and concern about permanent changes to the seascape.
- A limited capacity to adapt due to the rural island context and reliance on natural views for recreation and mental health.

22.9.2.16 Vulnerable groups in coastal settlements where visual effects are highest are considered to have **High** sensitivity. These groups typically have:

- **Poorer health status** and a greater reliance on the natural environment for wellbeing.
- A **low capacity to adapt** to permanent changes in visual amenity.
- Increased susceptibility to stress and anxiety associated with loss of restorative landscapes.

22.9.2.17 This heightened sensitivity reflects the potential for visual changes to exacerbate existing health inequalities and mental health challenges.

Significance

22.9.2.18 Given that magnitude of impact is considered **Medium** and the sensitivity of the receptor is considered **Medium** the significance of the effect on local residents is considered **Moderate (Potentially Significant)**. The effect is characterised as being adverse in direction.

22.9.2.19 Given that the magnitude of impact is considered **Medium** and the sensitivity of the receptor is considered **High** for vulnerable groups, the significance of the effect on vulnerable groups within the population is considered **Moderate (Potentially Significant).** The effect is characterised as being adverse in direction.

22.9.2.20 In EIA terms, a "Moderate" effect can sit close to the threshold of significance and therefore requires the application of professional judgement, rather than a purely mechanical interpretation of an impact matrix.

22.9.2.21 In applying professional judgement for human health, the following factors have been considered to determine whether the Moderate Adverse effects should be treated as significant in EIA terms:

- Nature and severity of the health outcome: The pathway is primarily psychological (e.g., annoyance, stress, reduced wellbeing and altered place attachment), which most plausibly manifests as quality-of-life effects rather than severe morbidity.

- Duration and reversibility: Effects are long-term (for the duration of O&M), increasing the weight placed on adaptation and sustained exposure; however, they remain reversible at decommissioning (i.e., not permanent in EIA terms).
- Magnitude and certainty: Evidence from literature[2] supports a link between landscape change and mental wellbeing; however, these effects are often subjective and variable across individuals.
- Sensitivity and vulnerability: Vulnerable groups may experience disproportionate effects, but the significance judgement must consider whether the effect is likely to be widespread and material at a population level, or concentrated in specific exposed communities and individuals.
- Consistency with SLVIA evidence base: The SLVIA provides the primary evidence on the scale and distribution of visual change and identifies significant adverse visual effects for some settlements, alongside not significant effects where views are contained/screened. This spatial variability supports a nuanced significance judgement for health, rather than a single uniform conclusion for all residents.

22.9.2.22 While the assessment identifies that visual impacts on human health during the operational and maintenance phase are **Moderate Adverse** for both receptors and therefore potentially significant, professional judgment has been applied to determine significance in EIA terms. This judgment considers the following factors:

- The magnitude of health impact is uncertain and likely to affect mental health and wellbeing outcomes such as stress or annoyance, rather than more easily measured clinical health effects.
- Embedded design and mitigation measures reduce the severity of visual intrusion where practicable, although residual effects remain.
- Evidence from literature[3] supports a link between landscape change and mental wellbeing; however, these effects are often subjective and variable across individuals.

22.9.2.23 On balance, while the effect is adverse and long-term, the likelihood of widespread or severe health outcomes is low, and the effect does not meet the threshold for a material change in human health. Accordingly, the effect is reported as Moderate Adverse with significance expressed using professional judgement as **Not Significant** overall at population level, but **Potentially Significant** locally for the most exposed settlements/vulnerable groups.

Further environmental mitigation and residual effect

22.9.2.24 No additional human health mitigation is considered practicable beyond measures already set out in **Table 22-13**. While visual effects remain significant in some locations, these are unavoidable given the scale and nature of the Offshore Project.

[2] For example - Visual Health Effects and Wind Turbines - AboutGenerators
[3] For example - Visual Health Effects and Wind Turbines - AboutGenerators

22.9.3 INCOMING OPERATIONAL WORKFORCE

22.9.3.1 There is potential for population change associated with an incoming operational workforce to increase pressure on access to healthcare services. This could result in longer waiting times for appointments and reduced availability of routine care, particularly for services that are already capacity constrained in a rural island setting. The key health outcome associated with this is general health. The receptors are the resident population and vulnerable groups.

Magnitude

22.9.3.2 The temporal scope for this effect is long-term, lasting for the whole operational life of the Offshore Project and short-term for any maintenance activities which are anticipated to be infrequent. During operation, a proportion of posts will be filled by workers relocating to the Western Isles. New households registering with local services can incrementally increase demand on primary care (GPs, Dentists, pharmacy) and, to a lesser extent, unplanned and secondary care.

22.9.3.3 **Chapter 6, Volume 2a**, indicates that some migration of labour could occur, but that the scale of in migration is moderated by:

- The expectation that incoming workers and their families would form a small proportion of all households on Lewis and Harris/*Leòdhas agus Na Hearadh*; and
- In-coming workers are expected to be dispersed across settlements rather than concentrated in a single location diffusing demand across multiple healthcare facilities.

22.9.3.4 This reflects a low exposure at the population level. The likely severity is limited to minor changes in morbidity and/or moderate quality-of-life effects associated with access (e.g., marginally longer waits for routine appointments) for a small minority of residents at any given time, with slight service quality implications however remote/rural service constraints are acknowledged in the sensitivity assessment. The magnitude of change is considered **Low.**

Sensitivity

22.9.3.5 The sensitivity of the resident population receptor is considered to be **Medium**. The population has better overall general health compared to national averages and comparative life expectancy to the national average. However, access to healthcare services is mixed with many people having to travel significant distances to access emergency health services and certain specialist treatments which require travel to Inverness or Glasgow. There are also emerging staffing issues as healthcare staff are reaching retirement age and the working age population has reduced. Certain health behaviours such as the prevalence of alcohol consumption and smoking are worse in the Western Isles than the averages for Scotland/*Alba* exacerbating existing pressure on healthcare services.

22.9.3.6 Vulnerable population receptors are likely to be more sensitive based on higher prevalence of long-term health conditions, physical disabilities, sensory impairments, alcohol misuse, and social isolation and loneliness but overall sensitivity of vulnerable populations is also **Medium.**

Significance

22.9.3.7 Given that the magnitude of impact is considered **Low** and the sensitivity of the receptor is considered **Medium** the significance of the effect is considered **Minor** (**Not Significant**). The effect is characterised as being adverse in direction.

Further environmental mitigation and residual effect

22.9.3.8 No additional human health mitigation is considered necessary because the likely effects in the absence of further mitigation are not significant in EIA terms.

22.10 ASSESSMENT OF EFFECTS: DECOMMISSIONING

22.10.1.1 Any human health effects arising from the decommissioning of the Offshore Project are expected to be comparable to, or less than, those arising during construction. As such, the assessment of construction effects are comparable to, or less than the significance finding for decommissioning.

22.11 ASSESSMENT OF COMBINED EFFECTS

22.11.1.1 The combined effects assessment considers likely significant effects from multiple impacts and activities from the construction, operation and maintenance, and decommissioning phases of the Offshore Project on the same communities, receptor, or group of receptors. The overall method for identifying and assessing potential Combined Effects in relation to the offshore environment is set out in **Chapter 5, Volume 1a**.

22.11.1.2 Combined effects could potentially arise in one of two ways. The first type of combined effect is a Project lifetime effect, where multiple phases of the Project (construction, operation and maintenance, and decommissioning) interact to create a potentially more significant effect on a receptor than in one phase alone.

22.11.1.3 The second type of combined effect is receptor-led effects. Receptor-led effects are where effects from different environmental aspects combine spatially and temporally on a receptor. These effects may be short-term, temporary, transient, or longer-term.

22.11.1.4 Receptor-led effects have been considered, where relevant, in this chapter for potential interactions between human health and the following environmental aspects:

- Socio-economics (See **Chapter 6, Volume 2a**)
- Seascape, Landscape and Visual Impact (see **Chapter 18, Volume 2a**);
- Airborne Noise (**Chapter 19, Volume 2a**);

22.11.1.5 Full results of the Project lifetime effects and receptor-led effects assessment can be found in **Chapter 23: Combined Effects Assessment, Volume 2a**.

22.12 CONSIDERATION OF ONSHORE TRANSMISSION WORKS PROJECT

22.12.1.1 A separate application for the Project's onshore elements (the OTW Project) that includes all infrastructure landwards of Mean Low Water Springs (MLWS) within the Onshore Transmission Works Boundary will be made, under the Town and Country Planning (Scotland) Act 1997 to Comhairle nan Eilean Siar (CnES). The OTW Project EIAR will provide a full description of the onshore elements of the Project landward of MLWS, and include an assessment of the associated likely significant effects.

22.12.1.2 This EIAR has considered the additive interactions between the Offshore Project and OTW Project to understand if there is the potential for any change to the assessment outcomes as a result of both elements of the Project. The approach to identify and consider potential interactions between the Offshore Project and OTW Project is set out in **Chapter 5, Volume 1a** and key design parameters associated with the OTW Project are summarised in **Chapter 3**, **Volume 1a**.

22.12.1.3 The potential for effects identified in **Table 22-14** to interact with effects associated with the OTW Project at a common receptor has been considered for Population and Human Health. **Table 22-14** provides a summary of the pathways considered in this chapter and the potential for interaction. Where required, this table provides the relevant MDS information for the OTW Project that has been used to inform this assessment.

Table 22-14 Summary of population and human health pathways and potential for interaction with the OTW Project

Assessment pathways considered and receptors	**Maximum Design Scenario**
Construction	
Noise effects from construction activities	<u>Offshore Project</u> - See MDS table <u>OTW Project</u> - Up to 13 Horizontal Directional Drilling (HDD) entry points near a coastal cliff at Barvas / *Barabhas* (Scenario 2) - Transition Joint Bays (TJBs) - An onshore temporary construction HDD compound (approximately 465 m x 480 m) and temporary access road to connect to the A857 - Up to 12 circuits of buried Onshore Cables will connect from the TJBs to the Landfall Substation located near Barvas / *Barabhas* or *Barbhas* (Scenario 2). - Construction of a Landfall Substation with a platform of approximately 150 m by 150 m and a maximum height of 15 m, plus several other, smaller buildings housing electrical and other equipment. Within the site compound, there will also be safety features such as lightning masts and access paths/roads. Construction timeline of approximately 36 months per substation. Permanent access road to the substation from the A857

Assessment pathways considered and receptors	Maximum Design Scenario
	- 2 circuits of 400 kV cables to connect from Landfall to a Grid Substation to the SSEN Lewis Hub. Onshore Cables to be buried. Open cut trenching to be the primary installation method, however 12 locations have been identified where trenchless crossing installations are anticipated. - Haul road to enable construction of the Onshore Cables. This road will be either removed and the land re-instated or transformed into a multi-use pathway post construction of the Onshore Cables. - Grid Substation to be constructed northwest of Loch Cnoc a'Choilich, consisting of up to 6 buildings in total, with a maximum height of 20 m, plus a number of other, smaller buildings housing electrical and other equipment. Within the site compound, there will also be safety features such as lightning masts and access paths/roads. Construction timeline of approximately 36 months per substation. It is anticipated that the OTW Project construction will take up to 5 years.
Visual effects from construction activities	<u>Offshore Project</u> - See MDS table <u>OTW Project</u> - Up to 13 Horizontal Directional Drilling (HDD) entry points near a coastal cliff at Barvas / *Barabhas* (Scenario 2) - Transition Joint Bays (TJBs) - An onshore temporary construction HDD compound (approximately 465 m x 480 m) and temporary access road to connect to the A857 - Up to 12 circuits of buried Onshore Cables will connect from the TJBs to the Landfall Substation located near Barvas / *Barabhas* or *Barbhas* (Scenario 2). - Construction of a Landfall Substation with a platform of approximately 150 m by 150 m and a maximum height of 15 m, plus several other, smaller buildings housing electrical and other equipment. Within the site compound, there will also be safety features such as lightning masts and access paths/roads. Construction timeline of approximately 36 months per substation. Permanent access road to the substation from the A857 - 2 circuits of 400 kV cables to connect from Landfall to a Grid Substation to the SSEN Lewis Hub. Onshore Cables to be buried. Open cut trenching to be the primary installation method, however 12 locations have been identified where trenchless crossing installations are anticipated. - Haul road to enable construction of the Onshore Cables. This road will be either removed and the land re-instated or transformed into a multi-use pathway post construction of the Onshore Cables. - Grid Substation to be constructed northwest of Loch Cnoc a'Choilich, consisting of up to 6 buildings in total, with a maximum height of 20 m,

Assessment pathways considered and receptors	Maximum Design Scenario
	plus a number of other, smaller buildings housing electrical and other equipment. Within the site compound, there will also be safety features such as lightning masts and access paths/roads. Construction timeline of approximately 36 months per substation. It is anticipated that the OTW Project construction will take up to 5 years.
Population change effects : presence of temporary construction workforce could lead to increased pressure on healthcare services.	<u>Offshore Project</u> - See MDS table <u>OTW Project</u> - Up to 13 Horizontal Directional Drilling (HDD) entry points near a coastal cliff at Barvas / *Barabhas* (Scenario 2) - Transition Joint Bays (TJBs) - An onshore temporary construction HDD compound (approximately 465 m x 480 m) and temporary access road to connect to the A857 - Up to 12 circuits of buried Onshore Cables will connect from the TJBs to the Landfall Substation located near Barvas / *Barabhas* or *Barbhas* (Scenario 2). - Construction of a Landfall Substation with a platform of approximately 150 m by 150 m and a maximum height of 15 m, plus several other, smaller buildings housing electrical and other equipment. Within the site compound, there will also be safety features such as lightning masts and access paths/roads. Construction timeline of approximately 36 months per substation. Permanent access road to the substation from the A857 - 2 circuits of 400 kV cables to connect from Landfall to a Grid Substation to the SSEN Lewis Hub. Onshore Cables to be buried. Open cut trenching to be the primary installation method, however 12 locations have been identified where trenchless crossing installations are anticipated. - Haul road to enable construction of the Onshore Cables. This road will be either removed and the land re-instated or transformed into a multi-use pathway post construction of the Onshore Cables. - Grid Substation to be constructed northwest of Loch Cnoc a'Choilich, consisting of up to 6 buildings in total, with a maximum height of 20 m, plus a number of other, smaller buildings housing electrical and other equipment. Within the site compound, there will also be safety features such as lightning masts and access paths/roads. Construction timeline of approximately 36 months per substation. It is anticipated that the OTW Project construction will take up to 5 years.
Operation and maintenance	
Noise effects	<u>Offshore Project</u> - See MDS table <u>OTW Project</u>

Assessment pathways considered and receptors	Maximum Design Scenario
	- Noise effects associated with Landfall Substation (Scenario 2) and Grid Substation - Potential use of haul road as multi-use pathway.
Visual effects	Offshore Project - See MDS table OTW Project - Visual effects associated with Landfall Substation (Scenario 2) and Grid Substation - Potential use of haul road as multi-use pathway.
Population change: in-migration of labour could lead to increased pressure on healthcare facilities.	Offshore Project - See MDS table OTW Project - Operational employment associated with Landfall Substation (Scenario 2) and Grid Substation
Decommissioning	
Noise effects	As per construction.
Visual effects	As per construction.
Population change	As per construction

Construction

Noise effects

22.12.1.4 There is potential for temporary adverse health effects from noise during construction when offshore activities (e.g., percussive piling) overlap with onshore OTW works (e.g., HDD at landfall, substation construction, and construction traffic). Health pathways are annoyance, stress, and potential sleep disturbance.

22.12.1.5 During construction, the principle offshore airborne noise source is percussive piling, with additional contributions from installation and support vessels; for nearby coastal communities with low baseline sound levels, the plausible health pathways are annoyance, stress and potential sleep disturbance.

22.12.1.6 The Offshore Human Health assessment identifies offshore piling as the dominant construction noise, but with the Offshore Piling Noise Management Plan and conservative setbacks, predicted magnitudes are reduced to negligible/minor at receptors, leading to an overall **Minor Adverse (Not Significant)** effect on human health (post-mitigation).

22.12.1.7 The OTW adds localised onshore noise (e.g., HDD at landfall, substation works, construction traffic). Given offshore piling remains the dominant coastal source and onshore sources are intermittent and spatially limited, the combined construction noise effect on health remains **Minor Adverse (Not Significant)** and no greater than offshore alone.

Visual effects

22.12.1.8 There is potential for temporary adverse health effects from visual change during construction when offshore activities (e.g., installation/jack-up/heavy-lift vessels, partially constructed turbines) overlap with onshore OTW works (e.g., landfall platform formation, compounds/cranes, construction traffic and task lighting). Health pathways are annoyance, stress, reduced restorative value of views, and altered place attachment.

22.12.1.9 During construction, the principle offshore visual influences are the presence and movement of large marine plant, part-constructed offshore elements, and night-time lighting visible from west-coast settlements within the blade-tip ZTV, particularly between the Butt of Lewis/*Rubha Robhanais* and Mangersta Head. For residents in these coastal locations, plausible health pathways are annoyance, stress and diminished perceived naturalness/remoteness during peak activity periods.

22.12.1.10 The Offshore Human Health assessment concludes that, with embedded design/engagement measures and given the temporary nature of peak construction phases, the magnitude of construction visual change is Low, resulting in an overall **Minor Adverse (Not Significant)** effect on human health (post-mitigation).

22.12.1.11 The OTW adds localised onshore visual activity (platform formation, compounds/cranes, transient lighting) principally near Upper Barvas/*Barabhas Uarach*, A857 frontage properties, Brue/*Brù*, and—to a lesser extent—*Barvas/Barabhas*.

22.12.1.12 Given offshore construction remains the dominant visual influence at the coast and onshore effects are spatially limited and short-term, the combined construction visual effect on human health remains **Minor Adverse (Not Significant)** and no greater than offshore alone.

Population change

22.12.1.13 There is potential for temporary adverse health effects from population change during construction when an incoming offshore construction workforce overlaps with onshore OTW construction workers. The impact of this is longer waiting times for healthcare appointments and reduced availability of routine care. The key health outcome associated with this is general health.

22.12.1.14 For offshore works, embedded mitigation M041 commits to accommodating the majority of offshore construction workers on vessels with on-board medical facilities, substantially limiting island-based demand for GP, dentistry and A&E, and moderating the potential for access-related effects among residents.

22.12.1.15 The Offshore Human Health assessment concludes that—with M041 in place and construction phasing—the magnitude of population-related health effects is **Low**, resulting in **Minor Adverse (Not Significant)** effects.

22.12.1.16 The OTW introduces a localised, temporary onshore construction workforce. Any non-resident workers in the construction workforce are unlikely to register with GP/dentistry; only a small proportion is expected to seek routine appointments during peak periods. In combination with offshore M041, the cumulative population-change health effect remains **Minor Adverse (Not Significant)**.

Operation and Maintenance

Noise effects

22.12.1.17 There is potential for adverse health effects from operational noise when offshore turbine noise coincides with fixed onshore OTW plant (e.g., transformers, cooling fans/HVAC) and occasional maintenance activity. Health pathways are annoyance, stress and potential sleep disturbance

22.12.1.18 The Offshore Human Health assessment concludes that operational turbine noise will be kept within agreed limits set by condition. Therefore, there is a **Minor Adverse (Not Significant)** effect on human health (post-mitigation).

22.12.1.19 The OTW contributes localised, steady operational plant noise at the Landfall Substation and the Grid Substation. It is anticipated that with design measures put in place, plant noise would be below background. In combination with the offshore conclusion, the cumulative O&M noise effect remains **Minor Adverse (Not Significant)** and no greater than offshore.

Visual effects

22.12.1.20 There is potential for adverse health effects from operational visual change due to the presence of offshore WTGs/OSP and aviation/marine navigation lighting, together with permanent onshore OTW infrastructure (Landfall Substation; Grid Substation). Health pathways are annoyance, stress, reduced restorative value of views, and altered place attachment.

22.12.1.21 The Offshore Human Health assessment (drawing on SLVIA) identifies **Medium** magnitude operational visual change for the most exposed settlements and concludes **Moderate Adverse (Potentially Significant)**; applying professional judgement, this is not significant at a population level overall, but may be locally significant for the most exposed settlements/vulnerable groups.

22.12.1.22 The OTW adds localised operational views of permanent substations for the Landfall Substation and for the Grid Substation. In combination, the population-level significance remains no greater than the offshore conclusion (i.e., not significant overall at population level, with the potential for localised, receptor-specific sensitivity where offshore views are already most affected).

Population change

22.12.1.23 There is potential for health effects from population change associated with the incoming operational workforce (offshore O&M crews plus onshore OTW staff). The impact of this is longer

waiting times for healthcare appointments and reduced availability of routine care. The key health outcome associated with this is general health.

22.12.1.24 For offshore O&M, workers are expected to be accommodated on an SOV or transported via CTVs, with only a small proportion relocating to the Western Isles. With embedded management, the Offshore Human Health assessment concludes **Low** magnitude and **Minor Adverse (Not Significant)** health effects from operational population change.

22.12.1.25 For onshore O&M, it is anticipated that the incoming workforce would be small given the nature of the OTW O&M phase being operations of substations which require limited ongoing maintenance. This would represent a relatively small proportion of the population of Lewis and Harris/*Leòdhas agus* with any relocating workers forming a small share of total households.

22.12.1.26 In combination with the OTW position, the increase in population would be greater than for the Offshore Project alone however the cumulative operational health effect remains **Minor Adverse (Not Significant)**.

Decommissioning

22.12.1.27 Given the comparable but reverse nature of decommissioning to the construction phase, it is considered that the impacts assessed for the construction phase will be the same or greater than those impacts arising during the decommissioning phase. Based on the information available at this stage, population and human health effects arising during decommissioning are considered to be **Minor Adverse** and therefore **Not Significant** in EIA terms.

22.13 ASSESSMENT OF CUMULATIVE EFFECTS

22.13.1 APPROACH

22.13.1.1 For human health, a Zone of Influence (ZOI) has been applied to ensure direct and indirect cumulative effects can be appropriately identified and assessed. The ZOI as identified within this chapter comprises the island study area (Lewis and Harris/*Leòdhas agus Na Hearadh*) and local study area (Western Isles) used in the human health assessment. Only projects likely to impact on the communities in these areas have been included in the CEA.

22.13.1.2 Only those Other Developments in the short list that fall within the human health ZOI have the potential to result in cumulative effects with the Offshore Project. All Other Developments falling outside the human health ZOI are excluded from this assessment. The following types of Other Development have the potential to result in cumulative effects on human health:

- Onshore wind farms;
- Offshore wind farms;

- Grid connections, substations and transmission;
- Upgrades to road or harbour infrastructure;
- Commercial or industrial developments.

22.13.1.3 On the basis of the above, the Other Developments that are scoped into the human health CEA are outlined inTable 22-15. It should be noted that Other Developments which are proposed or under construction at the time of writing this chapter, are included in the table below with the information available.

22.13.1.4 Effects arising interactions between the Offshore elements and the OTW components, have been fully considered within the cumulative assessment.

22.13.1.5 The cumulative Project Design Envelope is described in **Table 22-16**.

Table 22-15

Table 22-15 Other Developments considered as part of the human health CEA

ID (Figure 6.4, Volume 1c)	Development Type	Application Reference	Description of Development	Status	Timescale[4]	Confidence in Assessments	Tier[5]	Distance from Array Area	Distance from OCAS
1	Offshore Wind Farm	OWF-024	Talisk Offshore Wind Project	In planning – scoping report submitted (onshore and offshore)	Construction expected 2029-2032	Medium	2	28 km	32 km
2	Offshore Wind Farm	OWF-026	Havbredey	In planning – scoping report submitted (offshore)	Construction expected 2030-2035	Medium	2	55 km	55 km
3	Onshore Wind Farm	ONWF-002	Stornoway Wind Farm	Consented	Construction expected 2027-2031	High	1	23 km	17 km

[4] The Planning Inspectorate Advice Note 17 states '*Where other developments are expected to be completed before construction of the proposed Major Infrastructure Project and the effects of those projects are fully determined, effects arising from them should be considered as part of the baseline and may be considered as part of both the construction and operational assessment*.'

[5] Chapter 5 sets out the full definitions of the tiers. Tier 1: high level of certainty or information availability (including under construction or where a planning application has been approved or is awaiting decision). Tier 2: medium level of certainty or information (such as developments where a Scoping Report has been submitted). Tier 3: low level of certainty or information available (no planning applications submitted or identified for potential future development only).

ID (Figure 6.4, Volume 1c)	Development Type	Application Reference	Description of Development	Status	Timescale[4]	Confidence in Assessments	Tier[5]	Distance from Array Area	Distance from OCAS
4	Onshore Wind Farm	ONWF-005	Druim Leathann Windfarm	Consented	Decommissioning expected 2033-2068	High	1	24 km	17 km
5	Onshore Wind Farm	ONWF-006	Uisenis Wind Farm	Consented	Construction expected 2027-2030	High	1	31 km	34 km
6	Onshore Wind Farm	ONWF-009	West Coast Community Energy Project	Pre-planning	Construction expected 2030-2033	Low	3	14 km	6 km
7	Onshore Wind Farm	ONWF-011	Arnish Moor Wind Farm	Operational	Decommissioning expected 2031-2032	High	1	29 km	23 km
8	Grid connections, substations and transmission	ENG-013	Western Isles Connection Project – Lewis Hub	In planning – application submitted	Construction expected 2026-2030	High	1	31 km	23 km
9	Grid connections, substations and transmission	ENG-018	Talisk Floating Offshore Wind Farm (Onshore Components)	In planning – scoping report submitted	Construction expected 2029-2032	Medium	2	27 km	20 km

ID (Figure 6.4, Volume 1c)	Development Type	Application Reference	Description of Development	Status	Timescale[4]	Confidence in Assessments	Tier[5]	Distance from Array Area	Distance from OCAS
10	Grid connections, substations and transmission	ENG-020	Stornoway Grid Supply Point Upgrade	Pre-planning	Construction expected 2028-2030	Low	3	27 km	20 km
11	Grid connections, substations and transmission	ENG-021	Stornoway Windfarm Grid Connection	Pre-planning	Construction expected 2028-2030	Low	3	26 km	19 km
12	Grid connections, substations and transmission	ENG-022	Muaitheabhal Wind Farm 132 kV Overhead Line Connection	In planning – scoping report submitted	Construction expected 2028-2030	Medium	2	31 km	34 km
13	Grid connections, substations and transmission	ENG-029	Western Isles Connection Project – HVDC Link	In planning – application submitted	Construction expected 2028-2030	High	1	31 km	23 km
14	Harbour Development	POR-014	Deep Water South, Stornoway Port	In planning – scoping report submitted	Construction expected 2028-2031	Medium	2	30 km	22 km

Table 22-16 Cumulative Project Design Envelope for human health

Project phase and activity/impact	Scenario	Justification
Construction and Decommissioning		
Noise and visual effects on resident population and vulnerable groups.	**Tier 1 projects** Uisenis Wind Farm (ONWF-006) Arnish Moor Wind Farm (ONWF-011) Western Isles Connection Project – Lewis Hub (ENG-013) Western Isles Connection Project – HVDC Link (ENG-029) **Tier 2 projects** Talisk Offshore Wind Project (OWF-024) Havbredey (OWF-026) Talisk Floating Offshore Wind Farm (Onshore Components) (ENG-018) Muaitheabhal Wind Farm 132 kV Overhead Line Connection (ENG-022) Deep Water South, Stornoway Port (POR-014) **Tier 3 projects** West Coast Community Energy Project (ONWF-009) Stornoway Grid Supply Point Upgrade (ENG-020) Stornoway Windfarm Grid Connection (ENG-021)	The construction or decommissioning of these projects is expected to overlap with the construction phase of the Offshore Project. There is therefore the potential of additional noise and visual disruption that could lead to temporary effects for the residential population and vulnerable groups.
Presence of temporary construction workforce could lead to demographic change and additional demand for health services.	**Tier 1 projects** Uisenis Wind Farm (ONWF-006) Arnish Moor Wind Farm (ONWF-011) Western Isles Connection Project – Lewis Hub (ENG-013) Western Isles Connection Project – HVDC Link (ENG-029) **Tier 2 projects** Talisk Offshore Wind Project (OWF-024) Havbredey (OWF-026) Talisk Floating Offshore Wind Farm (Onshore Components) (ENG-018)	The construction or decommissioning of these projects is expected to overlap with the construction phase of the Offshore Project. There is therefore the potential that temporary in-migration of labour could lead to additional demand for health services.

	Muaitheabhal Wind Farm 132 kV Overhead Line Connection (ENG-022) Deep Water South, Stornoway Port (POR-014) **Tier 3 projects** West Coast Community Energy Project (ONWF-009) Stornoway Grid Supply Point Upgrade (ENG-020) Stornoway Windfarm Grid Connection (ENG-021)	
Operation		
Visual effects on resident population and vulnerable groups.	**Tier 1 projects** Stornoway Wind Farm (ONWF-002) Druim Leathann Windfarm (ONWF-005) Uisenis Wind Farm (ONWF-006) **Tier 2 projects** Talisk Offshore Wind Project (OWF-024) Havbredey (OWF-026) **Tier 3 projects** West Coast Community Energy Project (ONWF-009)	These projects are within the ZOI for the SLVIA CEA, and there is therefore the potential for cumulative effects on visual effects during the operational phase.
In-migration of labour could lead to demographic change and additional demand for health care facilities.	**Tier 1 projects** Stornoway Wind Farm (ONWF-002) Druim Leathann Windfarm (ONWF-005) Uisenis Wind Farm (ONWF-006) **Tier 2 projects** Talisk Offshore Wind Project (OWF-024) Havbredey (OWF-026) **Tier 3 projects** West Coast Community Energy Project (ONWF-009)	The operational phase of these projects is expected to overlap with the construction phase of the Offshore Project. There is potential that temporary in-migration of labour could lead to additional demand for health services
Decommissioning		
In-migration of labour could lead to demographic change and additional demand for health care facilities.	**Tier 2 projects** Talisk Offshore Wind Project (OWF-024)	The decommissioning of this project is expected to overlap with the construction phase of the Offshore Project. There is therefore the potential that temporary in-migration of labour

		could lead to additional demand for health services

22.13.1.6 A description of the significance of cumulative effects upon human health receptors arising from each identified impact is given below. The cumulative effects assessment has been based on information publicly available in the planning application documents for the Other Developments. It is noted that the maximum assessment assumptions quoted within these planning applications (EIARs/ESs) are often refined during the determination period and in the post-consent phase such that the final scheme's build out may have a reduced impact when compared to what has previously been assessed.

Noise and visual effects on resident population and vulnerable groups

22.13.1.7 There is potential for cumulative noise effects due to an overlap in construction between the Offshore Project and Other Developments. **Chapter 15: Offshore Archaeology and Cultural Heritage, Volume 2a** identifies potential cumulative effects due to an overlap with Stornoway Wind Farm. If construction is simultaneous with the Offshore Project and overlaps for greater than one month, the CEMP will consider the need for mitigation measures to avoid significant cumulative effects. During operation cumulative noise effects are anticipated to be negligible.

22.13.1.8 There is potential for cumulative visual effects due to an overlap in construction and operation and maintenance of the Offshore Project and Other Developments. The CEA in **Chapter 18, Volume 2a,** reports no significant visual cumulative effects during construction and operation.

Additional demand for health care facilities

22.13.1.9 There is potential for temporary adverse effects due to an influx of construction workers during construction of the Offshore Project in combination with Other Developments in **Table 22-16**Table 22-15. Employment information is only available for Uisenis Wind Farm at the time of writing and the effect is assessed as minor and not significant.

22.13.1.10 During operation and maintenance, there will be a smaller influx of workers than during construction. This will reduce the potential for any adverse effects.

22.13.1.11 Any potential effects will be reduced through embedded mitigation M042 which will work with key stakeholders and co-ordinate with other developers to reduce pressure on services.

22.13.1.12 The CEA for human health is set out in **Table 22-17**.

Table 22-17 Cumulative effects assessment for human health

ID	Development title	Application reference	Assessment discussion	Mitigation
1	Talisk Offshore Wind Project	OWF-024	Potential for adverse effects on demand for healthcare facilities due to an influx of workers. However, no employment information available at time of writing. No significant cumulative effects on views or visual receptors which reduces the potential for cumulative effects.	None required at this stage.
2	Havbredey	OWF-026	Potential for adverse effects on demand for healthcare facilities due to an influx of workers. However, no employment information available at time of writing. No significant cumulative effects on views or visual receptors which reduces the potential for cumulative effects.	None required at this stage.
3	Uisenis Wind Farm	ONWF-006	Potential for adverse effects on demand for healthcare facilities due to an influx of workers. Construction employment associated with the Uisenis Wind Farm is assessed as minor and not significant, and therefore the cumulative effect is not expected to be significant. No significant cumulative effects on views or visual receptors which reduces the potential for cumulative effects.	None required at this stage.
4	West Coast Community Energy Project	ONWF-009	Potential for adverse effects on demand for healthcare facilities due to an influx of workers. However, no employment information available at time of writing.	None required at this stage.

			No significant cumulative effects on views or visual receptors which reduces the potential for cumulative effects.	
5	Arnish Moor Wind Farm	ONWF-011	Potential for adverse effects on demand for healthcare facilities due to an influx of workers. However, no employment information available at time of writing. No significant cumulative effects on views or visual receptors which reduces the potential for cumulative effects.	None required at this stage.
6	Talisk Floating Offshore Wind Farm (Onshore Components)	ENG-018	Potential for adverse effects on demand for healthcare facilities due to an influx of workers. However, no employment information available at time of writing. No significant cumulative effects on views or visual receptors which reduces the potential for cumulative effects.	None required at this stage.
7	Stornoway Grid Supply Point Upgrade	ENG-020	Potential for adverse effects on demand for healthcare facilities due to an influx of workers. However, no employment information available at time of writing. No significant cumulative effects on views or visual receptors which reduces the potential for cumulative effects.	None required at this stage.
8	Stornoway Windfarm Grid Connection	ENG-021	Potential for adverse effects on demand for healthcare facilities due to an influx of workers. However, no employment information available at time of writing. No significant cumulative effects on views or visual receptors which reduces the potential for cumulative effects.	None required at this stage.

9	Muaitheabhal Wind Farm 132 kV Overhead Line Connection	ENG-022	Potential for adverse effects on demand for healthcare facilities due to an influx of workers. However, no employment information available at time of writing. No significant cumulative effects on views or visual receptors which reduces the potential for cumulative effects.	None required at this stage.
10	Western Isles Connection Project – HVDC Link	ENG-029	Potential for adverse effects on demand for healthcare facilities due to an influx of workers. However, no employment information available at time of writing. No significant cumulative effects on views or visual receptors which reduces the potential for cumulative effects.	None required at this stage.
11	Deep Water South, Stornoway Port	POR-014	Potential for adverse effects on demand for healthcare facilities due to an influx of workers. However, no employment information available at time of writing. No significant cumulative effects on views or visual receptors which reduces the potential for cumulative effects.	None required at this stage.

22.13.2 TRANSBOUNDARY EFFECTS

22.13.2.1 Transboundary effects occur when a development in one European Economic Area (EEA) State impacts the environment of another EEA State(s).

22.13.2.2 It is anticipated that the majority of human health effects arising from the Offshore Project will occur within the study areas defined in Section 22.4.2. It is not anticipated that there would be any significant transboundary effects on the interest of other EEA States in relation to human health. Therefore, transboundary effects have not been considered further within the human health assessment.

22.14 SUMMARY OF RESIDUAL EFFECTS

22.14.1.1 **Table 22-18**Table 22-18 presents a summary of the assessment of significant impacts, any relevant mitigation and residual effects on human health receptors.

Table 22-18 Summary of residual effects

Activity and impact	Receptor	Magnitude of impact	Receptor and sensitivity or value	Embedded mitigation measures	Significance of effect (significance)	Further environmental mitigation	Significance of residual effect (significance)
Construction							
Noise impacts	Resident population	Low	Medium	M019, M044	**Minor (not significant).**	N/A	**Minor (not significant).**
	Vulnerable groups	Low	Medium	M019, M044	**Minor (not significant).**	N/A	**Minor (not significant).**
Visual impacts	Resident population	Low	Medium	M019, M044	**Minor (not significant).**	N/A	**Minor (not significant).**
	Vulnerable group	Low	Medium	M019, M044			
Population change	Resident population	Negligible	Medium	M041, M042, M044	**Negligible (not significant).**	N/A	**Minor (not significant)**
	Vulnerable groups	Negligible	Medium	M041, M042, M044	**Negligible (not significant).**	N/A	**Minor (not significant)**
Operation & Maintenance							
Noise impacts	Resident population	Low	Medium	M044	**Minor (not significant).**	N/A	**Minor (not significant).**
	Vulnerable groups	Low	Medium	M044	**Minor (not significant).**	N/A	**Minor (not significant).**
Visual impacts	Resident population	Medium	Medium	M040	**Moderate (potentially significant).**	N/A	**Not significant**
	Vulnerable groups	Medium	High	M040	**Moderate (potentially significant).**	N/A	**Potentially significant**

Population change	Resident population	Low	Medium	M044	**Minor (not significant).**	N/A	**Minor (not significant).**
	Vulnerable groups	Low	Medium	M044	**Minor (not significant).**	N/A	**Minor (not significant).**

22.15 GLOSSARY OF TERMS AND ABBREVIATIONS

22.15.1.1 A list of key terms and acronyms used in this chapter are provided in **Table 22-19** and **Table 22-20**.

Table 22-19 Acronyms and abbreviations

Term	Definition
A&E	Accident and Emergency
ASHE	Annual Survey of Hours and Earnings
CEA	Cumulative Effects Assessment
CnES	Comhairle nan Eilean Siar
CTV	Crew Transfer Vessel
EEA	European Economic Area
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMP	Environment Management Plan
FTE	Full Time Equivalent
HIE	Highlands and Islands Enterprise
MD-LOT	Marine Directorate Licensing Operations Team
MD-SEDD	Marine Directorate Science, Evidence, Data and Digital
NPF	National Planning Framework
NRS	National Records of Scotland
PAC	Preliminary Application Consultation
O&M	Operation and Maintenance
ONS	Office for National Statistics
PAC	Pre-Application Consultation
SEIA	Socio-economic Impact Assessment
SIMD	Scottish Index of Multiple Deprivation
SOV	Service Operational Vessel
SSA	Small Study Area
WIH	Western Isles Hospital
ZOI	Zone of Influence
ZTV	Zone of Theoretical Visibility

Table 22-20 Glossary

Term	Meaning
The Applicant	Spiorad na Mara Limited (the Project owner).

Amenity	The natural environment, cultural heritage, landscape and visual quality. Also includes the impact of the Applicant's works on communities, such as the effects of noise and disturbance from construction activities.
Array Area	Total area within which offshore wind turbine generators, associated foundations, inter-array cables and offshore substations platform (OSP) (if required) will be located.
Construction Environmental Management Plan (CEMP)	A site-specific environmental management plan setting out the environmental management procedures, legislation and requirements for a particular project and site.
Comhairle nan Eilean Siar	The local authority for the Western Isles/*Na h-Eileanan an Iar*
Combined Effects	Combined effect of the individual development on one particular receptor; for example noise, dust and visual. This includes Project-Lifetime Effects and Receptor-Led Effects
Consultation	The dynamic process of dialogue between individuals or groups, based on a genuine exchange of views and, normally, with the objective of influencing decisions, policies or programmes of action.
Cumulative effects	Considers the likely significant effects of multiple impacts and activities from several developments with insignificant impacts individually but which together represent a significant cumulative effect
Effect	Term used to express the consequence of an impact. The significance of an effect is determined by correlating the magnitude of the impact with the importance, or sensitivity, of the receptor or resource in accordance with defined significance criteria.
EIAR	The Environmental Impact Assessment Report (EIAR) prepared to assess the likely significant effects of the Project on the environment.
Embedded or 'Designed-in' Mitigation	Mitigation measures to avoid or reduce environmental effects that are directly incorporated into the preferred design for the Project. This can include standard practice in accordance with or without guidance. Embedded mitigation is considered as part of the impact assessment, before effect significance is identified.
Environmental Impact Assessment (EIA)	Environmental Impact Assessment. A formal process codified by EU directive 2011/92/EU, and subsequently amended by Directive 2014/52/EU. The national regulations are set out in The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. The EIA process is set out in Regulation 4(1) of the regulations and includes the preparation of an EIA Report by the developer to systematically identify, predict, assess and report on the likely significant environmental impacts of a proposed project or development.
Full-time Equivalent	A measure which standardises temporary, part-time, occasional and full-time jobs into one metric measured by person years of employment.
Future Baseline	Refers to the situation in future years without the Project.

Impact	Change that is caused by an action; for example, land clearing (action) during construction which results in habitat loss (impact).
Mitigation	Term used to indicate avoidance, remediation or alleviation of adverse impacts.
Offshore Application	The application for Marine Licences under the Marine (Scotland) Act 2010 (between 0 and 12nm) and a Section 36 consent under the Electricity Act 1989.
Offshore Cables	Electrical and communication cables located within the Offshore Cable Area of Search and Array Area.
Offshore Project	Components of the Project seaward of Mean High Water Springs (MHWS). Includes Array Area plus Offshore Cable Area of Search.
Offshore Project Boundary	The 'red line boundary' encompassing the Offshore Project.
Offshore Substation Platform (OSP)	The optional offshore substation located within the Array Area. Includes the platform and associated components which allows the voltage to be increased to meet onward transmission requirements.
Onshore Application	The application for consent under the Town and Country Planning (Scotland) Act 1997 (as amended).
Onshore Transmission Works (OTW)/ Onshore Project	The components of the Spiorad na Mara offshore wind farm (the Project) located landward of Mean Low Water Springs (MLWS).
Project	To describe the Project as a whole, this includes all offshore and onshore components of the Project.
Project Boundary	The 'red line boundary' encompassing all offshore and onshore components of the Project.
Project Design Envelope	A description of the range of possible components that make up the Project design options under consideration when the exact engineering parameters are not yet known.
Project-Lifetime Effects	Assessment of the scope for combined effects that occur throughout more than one phase of the project (i.e. construction, operation and maintenance, decommissioning), to interact to potentially create an effect of greater significance than if assessed just within individual/isolated project phases
Receptor-Led Effects	Assessment of the scope for all combined effects to interact, spatially and temporally, to create an effect on a receptor of greater significance than when the effects are considered in isolation. Receptor-led effects may be short term, temporary or transient effects, or incorporate longer term effects.
Scoping Opinion	A report presenting the written opinion of the Scottish Ministers, with input from Comhairle nan Eilean Siar (CnES) for the OTW, as to the scope and level of detail of information to be provided in the Environmental Impact Assessment (EIA) for the Project.
Study Areas	Study Areas are determined for each technical discipline and are described within each technical chapter.

Wind Turbine Generators (WTG)	The components of a wind turbine, including the tower, nacelle and rotor.

22.16 REFERENCES

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