Social Impact Assessment: Further Research to Support the SEIA for the Sectoral Marine Plan for Offshore Wind Energy and Innovation and Targeted Oil and Gas Decarbonisation

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Riaghaltas na h-Alba

Social Impact Assessment: Further Research to Support the SEIA for the Sectoral Marine Plan for Offshore Wind Energy and Innovation and Targeted Oil and Gas Decarbonisation

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Report produced by AECOM on behalf of the Scottish Government

AECOM

This research report was commissioned to explore the views of Scottish coastal communities to inform of an 'early draft' of the Socio-Economic Impact Assessment (SEIA) for the updated Sectoral Marine Plan for Offshore Wind Energy. The insights from this research report, alongside stakeholder engagement have been factored into the Socio Economic Impact Assessment undertaken to support the draft updated Sectoral Marine Plan published in May 2025 for public consultation.

Given the iterative drafting of the SEIA, readers should bear in mind that this research report refers to an early 'draft plan-level SEIA' and not the version published for consultation.

This means that the research report and the SEIA on which its based should be treated with caution as it does not represent the Scottish Government's current understanding of the topic, conclusions, facts and figures, or terminology.

There are several caveats that should be kept in mind when considering this research report:

1. The dataset used in the draft published SEIA has a different timeframe and weightings than the early draft plan-level SEIA that was used for this research. As such, the figures reported in this research report are now out of date and may no longer be representative.

2. Some of the analyses referenced within this research report from the early draft plan-level SEIA, do not have a direct counterpart in the draft SEIA published for consultation. As such caution is advised when cross-referencing between this report with the published draft SEIA.

3. There is a possibility that focus group participants may have responded differently to the group discussions and line of questioning if they had been provided with the latest information and figures. As opposed to the information packs provided based on the early draft plan-level SEIA.

Notwithstanding the above, Scottish Government analysts consider the key findings from this research report remain applicable. This is primarily due to the nature of the responses, as well as the overall lack of change in trends in the data between the early and published drafts.

Contents

List of acronyms

CES	Crown Estate Scotland
dB(A)	Weighted decibel - expression of the relative loudness of sounds
EIA	Environmental Impact Assessment
ESA	Employment and Support, Allowance
FTE	Full-time equivalent jobs - unit to measure employed persons or students in a way that makes them comparable although they may work or study a different number of hours per week.
GVA	Gross Value Added
INTOG	Innovation and Targeted Oil and Gas decarbonisation
ONS	Office for National Statistics
OWE	Offshore Wind Energy
SCQF	Scottish Credit and Qualification Framework
SEIA	Socioeconomic impact assessment
SMP	Sectoral Marine Plan
SMP-OWE	Sectoral Marine Plans for Offshore Wind Energy

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Dr Karen Alexander (Heriot Watt University)

Bruce Buchanan (Scottish Government)

Executive Summary

The Scottish Government Offshore Wind Directorate commissioned AECOM to conduct a social research study into the social and economic impacts of offshore wind energy on coastal communities in Scotland. The aim of the study was to build on and further develop the findings obtained from the draft Socioeconomic Impact Assessment (SEIA) for the Sectoral Marine Plan (SMP) for Offshore Wind Energy (OWE) and Innovation and Targeted Oil and Gas Decarbonisation (INTOG) (hereafter referred to as 'draft plan-level SEIA'). This draft plan-level SEIA was not undertaken by AECOM and was still in development at the time this project was conducted. AECOM was not commissioned to verify the projections of the draft plan-level SEIA within the scope of this project, but rather to undertake research including a desk-based review, and five focus groups with residents of coastal communities to explore, test and make recommendations for refining the draft plan-level SEIA.

The impacts of offshore wind farms (OWF) on the local economy, employment and distributional impacts were discussed at length within the focus groups. Participants discussed to what extent OWF can help to establish local employment opportunities, and recognised potential opportinites for local businesses in supplying components, equipment and support services. Indirect local economy benefits were anticipated through the in-migration of labour encouraging expansion and development within the local area, as well as spending within local businesses.

The focus group participants recognised the potential for employment opportunities across the construction, maintenance and operation stages of OWF developments. In particular, the maintenance stage was identified as the main source of long-term local employment with the support of training and upskilling schemes. However, all five groups expressed a concern that local residents may not benefit from new employment opportunities as these may be filled by international offshore renewables developers with workers from outside Scotland. Participants generally were sceptical that there would be any significant and long-term in-migration of workers (and their families) relocating to local areas. Anticipated impacts of in-migration ranged from contributing to additional pressure on local services, especially education and health services, to some distributional impacts as a result of higher-earners moving to the area. Impacts on current local infrastructure as perceived by participants were mixed across the five focus groups. Most participants anticipated no additional pressure on local infrastructure, whilst some were concerned about additional demand and usage of local roads.

Participants' perceptions of tourism impacts were divided between OWF attracting visitors interested in eco-tourism on the one hand, and OWF deterring tourists as a result of the visual disturbance on the other hand. Health and socio-cultural impacts were not perceived as significant, with some participants mentioning that turbines could help reduce eco-anxiety,

whilst others mentioned visual disamenity caused by wind farms as potentially affecting their mental health negatively.

A recurring suggestion across all five locations was that participants wanted developers and the Scottish Government to engage in an "open and transparent dialogue" with coastal communities proximate to OWF on the potential and impacts of new developments. Furthermore, most participants suggested that more effective management of Community Benefit Funds would increase communities' acceptance of local OWF. The notion of community benefits ensuring that any negative impacts are mitigated and the local workforce benefits from employment and training opportunities was also mentioned in every focus group.

The research also indicated how views and attititudes towards OWF can change as a result of an informed debate. As part of the deliberative focus groups, the participants completed a survey (which included the presentation of an information pack) before and after the discussions to identify if their views had changed. Results were based on a small sample and should therefore be interpreted with caution. However, the pre- and post-survey indicated that participants' confidence in their understanding and knowledge of OWF increased substantially, and it appears that overall support for OWF in participants' local areas had improved due to more access to information on how communities would be impacted and could potentially benefit. Support for OWF in Scotland overall remained as positive as prior to the deliberation. This could indicate that for the particular sample, when provided with tangible and local-level information, opinions became more positive. This was particularly the case for women who were both less confident in their knowledge and less supportive of OWF than men pre-deliberation. Both groups became more supportive and confident as a result of the deliberation. However, for some themes views had become more negative. Especially the impact on the local economy was viewed more negatively, potentially because participants were sceptical that local residents may benefit from any new employment opportunities. Views with regards to impacts on human health also became more negative after deliberation.

Based on the desk-based review and the focus groups, this study makes a number of technical recommendations to refine the draft plan-level SEIA and, where relevant, SEIAs conducted at project-level by offshore developers when applying for a marine license (hereafter referred to as 'project-level SEIAs'). Wider policy recommendations are also made to enhance the positive impacts and minimise potential negative impacts of OWF largely based on mitigation suggestions from participants during focus group discussions.

Most importantly, the report recommends that the draft plan-level SEIA should widen its focus and take into account social impacts such as health and distributional impacts, and to disaggregate some of its themes. For example, distinguishing between impacts on recreation and tourism separately. A key recommendation for future plan-level SEIAs is to engage early with communities for scoping of potential impacts to ensure that the themes covered are as relevant and comprehensive and help support the relationship between the government and

OWF communities. Where possible, the draft plan-level SEIA should consider the groups within society that are likely to dispropotionately experience social, economic and/ or environmental change as a result of OWF proposals (hereafter referred to as 'affected communities').

With regards to policy recommendations, the report recommends conducting scoping research before SEIAs are developed (see recommendation above). Stakeholders could be engaged throughout the whole process of plan- and project-level SEIA development. This should be in addition to statutory and non-statutory consultation activities and consider appropriate methods for informing and engaging with the public.[1] Another key recommendation is to explore how to share the benefits of OWF through, for example, Community Benefit Funds, monetary benefits or social value with binding targets embedded in the project-level procurement process.

For a full list of recommendations please see **chapter 7** of this report.

[1] Scottish Government is considering how to engage local communities in the marine sector. Last year the participatory engagement and social research methods toolkit was published and is accessible here: Participatory engagement and social research: methods toolkit - gov.scot (www.gov.scot)

1. Introduction

Context

The Scottish Government has set a range of targets to cut greenhouse gas emissions and to generate more energy from renewable sources. The Climate Change (Scotland) Act 2019 commits the Scottish Government to reach net zero emissions of all greenhouse gases by 2045 and sets out interim targets to cut emissions by 75% by 2030 and 90% by 2040, against the 1990 baseline. The Scottish Government has also set a target to generate 50% of Scotland's overall energy consumption from renewable sources by 2030 and recognises the potential of offshore wind energy (OWE) in Scotland and its fundamental role in achieving net zero greenhouse gas emissions by 2045.

The Scottish Economy Secretary noted in early 2020: 'Scotland is the ideal location for offshore wind, but recent projects have not delivered the significant economic opportunities we want to see for Scottish businesses' (Scottish Government, 2020b). Other relatively recent announcements included Scotland's Offshore Wind Policy Statement (2020c), which highlights the role wind plays for decarbonisation. OWE can play an integral part in the Just Transition by delivering a decarbonised, affordable and secure energy system. This includes "a fairer, more secure energy system that is no longer reliant on volatile international commodity markets and delivers lower costs for consumers"; and will involve investments to create more jobs in the net zero energy economy, "a growing supply chain, new manufacturing capabilities, new skills, new export opportunities and thriving communities" (Scottish Government, 2023).

Offshore wind will play a vital part in meeting these challenges and is set to expand substantially in Scotland over the next decade and beyond. To facilitate the sustainable development of offshore renewable energy in Scottish waters, the Scottish Government has introduced a system of sectoral marine planning which includes a Social and Economic Impact Assessment (SEIA) to understand the plan-level social and economic effects on individuals and their communities from the offshore wind developments.

Purpose of this study

The Scottish Government Offshore Wind Directorate, on behalf of Scottish Ministers, commissioned AECOM to conduct a social research study into the social and economic impacts of OWE on coastal communities in Scotland. The aim of the study was to build on and further develop the findings obtained from the draft SEIA for the Sectoral Marine Plan (SMP) for Offshore Wind Energy and Innovation and Targeted Oil and Gas Decarbonisation (SMP-OWE and INTOG) (hereafter referred to as 'draft plan-level SEIA') that is currently being conducted to support the Iterative Plan Review. This draft plan-level SEIA was not undertaken by AECOM and was still in development

at the time this project was conducted. AECOM was not commissioned to verify the projections of the draft plan-level SEIA within the scope of this project, but rather to undertake research including a desk-based review, and five focus groups with residents of coastal communities to explore, test and make recommendations for refining the draft plan-level SEIA .

The study aims to fill the potential evidence gap in the draft plan-level SEIA by understanding the views of local communities on what the social and economic impacts of offshore wind farms (OWF) are expected to be from their own perspectives.

Following on from this introduction section, the remainder of the report is structured as follows:

Background: setting the context for the Sectoral Marine Plan and Offshore Wind Energy and explaining the purpose of the draft plan-level SEIA in the context of the SMP-OWE and INTOG.

Approach: setting out the approach to the collection of evidence and primary research process including an overview of how focus groups were delivered (includes information about participant recruitment);

Desk-based review: summarising the Scottish Government's draft plan-level SEIA for SMP-OWE and INTOG (part A); and outlining central themes and findings from wider offshore wind literature on social and economic impacts (part B);

Summary of the focus groups: a thematic summary of the focus group discussions (includes survey capturing participants' views on OWF before and after the focus groups);

Relevance of findings to the draft plan-level SEIA: a brief synthesis of the views and opinions of the focus group participants on the key projections from the draft plan-level SEIA;

Recommendations: synthesising all elements of the research project, recommendations to the Scottish Government and developers, distinguishing between technical suggestions and policy recommendations to improve the draft plan-level SEIA and future project-level SEIAs; and

Conclusion: concluding with a brief overview of the research project and its key findings.

2. Background

The Sectoral Marine Plan and Offshore Wind Energy

The Offshore Wind Directorate within the Scottish Government is responsible for Sectoral Marine Planning. The SMP brings together the Strategic Environmental Assessment (SEA), Habitats Regulation Appraisal (HRA) and Social and Economic Impact Assessment (SEIA), as well as statutory consultation processes into one integrated process. The output of the process is a Sectoral Marine Plan (SMP) containing the Scottish Ministers' 'Plan Options' for the sustainable development of offshore renewable energy in Scottish waters.

Seabed leasing is the responsibility of the Crown Estate Scotland (CES) who lease Scotland's seabed for the development of offshore renewable energy within the Plan Option Areas, including for offshore wind. These option agreements grant developers access to specific areas of the seabed. After securing the seabed lease,applicants must seek licence/consent for their projects by submitting applications to the Marine Directorate within the Scottish Government.

In October 2020, the Sectoral Marine Plan for offshore wind energy (SMP-OWE) was published by Scottish Ministers and identified 15 plan options for future commercial scale offshore wind developments (Scottish Government, 2020a). These Plan Options now form the spatial component of the seabed leasing process, ScotWind, managed by Crown Estate Scotland (CES) (Scottish Government, 2022a). The ScotWind seabed leasing round and the subsequent clearing process conducted by CES concluded in 2022 with the award of 20 projects across these 15 plan options with a potential future generation capacity of 27.6GW (Crown Estate Scotland, 2022). The capacity for OWE fed into the electricity grid is forecast to be 35-38GW by 2050 in Scotland (National Grid ESO, 2022).

The SMP-OWE included provisions for an Iterative Plan Review process to ensure the plan remains reflective of current scientific understanding and knowledge, integrate new evidence and facilitate the continuous improvement of marine planning. New potential generation capacity originating from the CES's ScotWind leasing process has encouraged a re-assessment of the SMP and the simultaneous integration of Offshore Wind Energy and Innovation and Targeted Oil and Gas (INTOG) Decarbonisation.

INTOG is a second CES leasing round for offshore wind projects, separate to ScotWind, which aims to facilitate decarbonising oil and gas installations using OWE. According to the Oil and Gas Authority (2020), power generation for oil and gas infrastructure in the UK, which comes primarily from the burning of fossil fuels, generates emissions equivalent to 10 million tonnes every year: about the same amount generated by electricity use in nine million homes (Crown Estate Scotland, 2023a). These emissions could be

eliminated by powering the installations with electricity from new wind farms instead.

An Initial Plan Framework (IPF) was published outlining the process for the development of the Sectoral Marine Plan for INTOG (Scottish Government, 2022a). This framework facilitated the INTOG leasing round. Offshore wind developers were able to apply for seabed rights under INTOG for two types of offshore wind projects:

- IN - Small scale innovative projects of less than 100 megawatts (MW). Five IN projects have been offered seabed Exclusivity Agreements by the CES.
- TOG - Projects connected directly to oil and gas infrastructure to provide electricity and reduce the carbon emissions associated with production. Seven TOG projects have been offered seabed Exclusivity Agreements by the CES.

The areas identified by the INTOG leasing process, expected to generate a further 5.5GW of potential offshore wind capacity, will be assessed by the Offshore Wind Directorate through their Sectoral Marine Planning process. INTOG plan options included in the final plan may be offered seabed Option Agreements by CES.

To date, almost all offshore wind developments have been fixed bottom turbines in relatively shallow waters (10-60m) around the UK. However, in the future offshore wind developments in Scotland are anticipated to increasingly use floating turbines allowing for developments to sit in deeper waters and increasing access to the windiest areas. Floating offshore wind has potential significant export opportunities for Scotland and the UK. Globally, it is estimated that about 80% of the offshore wind resource is in sea areas with depths greater than 60m and thus more suitable to floating wind.

Social and Economic Impact Assessment (SEIA)

Supporting the development of the SMP-OWE and INTOG, the plan-level SEIA, once finalised, will aim to understand the social and economic impacts on individuals and their communities resulting from the planned offshore wind developments at a strategic plan-level. Within the current draft plan-level SEIA (September 2023), the assessment of social impacts was centred on a discussion of 'social clusters' linked to national indicators and sustainable development goals from the National Performance Framework. At the time this project was conducted, the clusters with identified impacts included, but were not limited to, family life, employment, cost of living, local industry, community sustainability, transport connections, local identity and cultural heritage.

However, as described in the literature by scholars such as Glasson et al. (2022b) and the Scottish Government Socioeconomic ScotMER Receptor Group (2023), SEIAs in the context of offshore wind developments tend to be quite high level and focus on economic impacts over social impacts. Impacts of offshore wind developments on the human environment, and the impacts on local and regional coastal communities adjacent to the projects remain under-researched and there is

a potential evidence gap particularly in the assessment of social impacts. Identifying these impacts, especially mixed or negative ones, and highlighting potential evidence gaps in the existing draft plan-level SEIA is therefore crucial with regards to a social licence to operate. In other words, identifying impacts and engaging with stakeholders such as communities and businesses increases the level of acceptance or approval (Stephens and Robinson, 2021). Findings from social impact assessments can be utilised to alleviate fears and uncertainty, and mitigation and enhancement methods, such as offering community benefits, can both be part of the positive social impacts.

3. Approach

Overview of research methodology

The aim of the study was to support the draft plan-level SEIA by understanding the views of local communities associated with the potential social and economic impacts of OWE and INTOG. A methodology was developed to explore, test and make recommendations for refining the draft plan-level SEIA using a three-staged process as follows:

Stage 1: Desk based review of the draft plan-level SEIA, existing academic and grey literature and the socio-demographic and economic profiles of the coastal areas selected for primary research;

Stage 2: Deliberative focus groups with members of the public living within five coastal communities located near to existing or planned OWF developments;

Stage 3: Analysis and reporting including **recommendations** resulting from this study relating to the technical and policy implications for the draft plan-level SEIA and project-level SEIAs, as well as reflections on the approach used for the research.

Stage 1: Desk-based review

A desk-based review was conducted comprising three elements. Firstly, the draft plan-level SEIA was reviewed and summarised by theme. Secondly, a wider review of literature on the social and community impacts related to OWF and renewable energy developments was undertaken with the aim of establishing a coherent overview of potential social and economic impacts, as well as social and economic impacts that have occurred in the past. A full list of all literature reviewed is presented at the end of this report and includes both national and international academic and wider literature such as industry reports and policy documents. The review presented in this report outlines the central themes that were explored in the focus groups.

Further to the review of the draft plan-level SEIA and literature review, a desk-based research activity was conducted to capture relevant data and information on the local socio-demographic context of the five chosen coastal areas as outlined in the next section. A profile was developed for each coastal area with regards to age, deprivation, employment, education, and health information. The aim of this exercise was to highlight to each focus group the identified key characteristics of their area relevant to the themes identified in the literature review, and to help facilitate discussion. The social profiling also included maps created through GIS to visually demonstrate deprivation and other socio-economic characteristics within the communities in relation to OWF infrastructure and associated developments or supporting infrastructure.

Stage 2: Deliberative focus groups

Deliberative research was used to provide valuable in-depth insights into participants' views on a specific topic and how these views potentially change when participants were provided with information and given the opportunity to discuss and reflect. Focus groups were used to conduct this research as they provided the opportunity to discuss information and build on participants' responses throughout the session, with potential for debating the impacts which had limited coverage in the draft plan-level SEIA.

Five virtual focus groups were conducted between 11th October – 20th October 2023. These discussions involved a total of 44 members of the public across the following five coastal locations:

- Lewis (Na h-Eileanan Siar);
- Orkney Islands;
- Dundee City (Dundee);
- Buckie (Moray); and
- Stonehaven (Aberdeenshire).

Initially, the research team had planned to undertake three in-person focus groups in Dundee, Buckie and Stonehaven and two virtual focus groups for Lewis and Orkney Islands. This was to increase accessibility in the latter two locations given the low population density and travel distances. However, a red weather warning issued on 18th October 2023 as a result of storm Babet considered travel across central and eastern Scotland a threat to life. Following agreement with the Scottish Government, the in-person focus groups were held virtually on the date and time formerly planned. This had no impact on the number of participants attending. In fact, there was a strong preference for online focus groups (rather than in-person focus groups) amongst most research participants.

Coastal locations

The locations from which participants were recruited were selected on the basis of a range of criteria. The project aimed to recruit people who lived near OWF as well as people who did not have a direct experience of OWF to ensure a diverse representation of attitudes towards and experiences of OWF. All focus groups participants lived in a coastal community (within 5 km of the coast as defined by the James Hutton Institute (no date)). When deciding which locations should be selected as research sites, the following criteria were considered.

Urban/rural:

Rurality served as a proxy for population density, access to and availability of services, business and economic profile and the workforce, but also factors such as seascape/landscape.

Focus group participants needed to be from locations representing both urban and rural areas applying the Scottish Government's 6-fold (2022b) and 10-fold classifications for urban/rural (Thomson et al., 2023).

The **concentration of OWF** projects in direct proximity:

Focus group participants came from locations with varying degrees of exposure to OWF to ensure that areas with a relatively high or low number of OWF were included as attitudes towards OWF may vary with increased exposure (Scottish Government, 2022c).

The **stage of OWF** developments:

Focus group participants needed to be in areas experiencing different stages of the development of OWF covering the planning and development, construction, and lastly the operational phase to identify if impacts and experiences change once OWF are operational, as suggested by early research (Scottish Government, 2022c).

Relevant initial findings of the draft plan-level SEIA were also considered when choosing research locations. In the draft plan-level SEIA, some locations were highlighted as potential places for significant socio-economic impacts. These locations were considered when deciding the research sites for this study.

The rationale for selecting each research location is included in **appendix A**.

For each location, the project team developed a socio-economic profile with the aim of providing further local context during the focus group sessions and facilitating the conversation by referring back to specific local challenges. Each coastal area was described with regards to the following factors:

Age, specifically the share of the population over 65 years old in comparison to the working age population, but also other age groups.

Gender to indicate the share of male, female and nonbinary people within the population.

Disability to indicate whether the population has a relatively higher level of people with long-term health problems or disabilities.

Employment and employment deprivation: An area is employment deprived if compared to other areas a high proportion of its working age population receive jobseekers' allowance, Universal Credit and are not in employment, or Incapacity Benefit, employment and Support, Allowance (ESA), or Severe Disablement Allowance.

Educational performance and education deprivation, which is associated with school pupil attendance, attainment of school leavers, working age population with no qualifications, enrolment into higher education, and young people not partaking in education, employment or training.

Health levels and health deprivation which relates to mortality rates, alcohol and drug misuse, illnesses, emergency stays in hospitals, population being prescribed drugs for anxiety, depression or psychosis, and low birth weight.

Access deprivation which includes travel time to services such as GPs, petrol stations and schools, private and public transport, digital access and access to broadband.

Housing deprivation which considers overcrowding of houses, and access to central heating.

Overall levels of **deprivation** including income, employment, education, health and housing.

Whilst a full assessment by location for each of the criteria is in **appendix B,** including data references, the following high-level findings were taken to the focus groups:

Aberdeenshire was found to have an ageing population and overall low levels of deprivation. The least deprived area in Aberdeenshire is **Stonehaven** with highly accessible services in contrast to wider Aberdeenshire where access to services is poor. Aberdeenshire overall has higher than average median gross weekly income.

Na h-Eileanan Siar has a decreasing and ageing population, and relatively low levels of deprivation. However, access to services in Na h-Eileanan Siar is poorer than in all other Scottish local authorities and the median gross weekly income is below the national average.

Orkney as well has an ageing population and low levels of deprivation. Again, access to services in Orkney is poorer than in most other Scottish local authorities. Orkney has experienced a recent increase in child poverty, but the average median gross weekly income is higher than average.

Dundee also has an ageing population and deprivation in Dundee is higher than in most other Scottish local authorities. Levels of income are generally poor across Dundee and the average median gross weekly income is lower than the national average. However, access to services is relatively high in comparison to neighbouring areas.

Lastly, **Moray** also has an ageing population. Whilst the majority of Moray has low levels of deprivation, despite low median gross weekly incomes and poor access to services across Moray. **Buckie** specifically however has highly accessible services.

Recruitment

Focus group participants were members of the public living within approximately 5 km of the coast recruited through a combination of targeted advertisement on a social media platform (Meta) and targeted in-person recruitment to ensure the sampling quotas were met and a sampling bias due to social media advertisement was avoided.

Eight to ten participants were recruited per focus group to maximise the number of participants across the fieldwork whilst keeping each focus group engaging. Each participant was offered up to £50 compensation for partaking in this research.

A sampling frame reflecting key demographics for each of the locations was developed from the findings of the socio-demographic review. This included a target recruitment quota for age, gender, education and occupational status shown in **appendix C**. Recruitment was then conducted using both paid social media advertisement targeting the specific locations, and a face-to-face recruiter. The social media advertisement included a link to a pre-screening survey to determine eligibility in line with this sampling frame, while the in-person recruiter recorded these prior to recruiting a participant. All participants provided their consent to taking part in the research.

It should be noted that whilst the focus group participants were recruited to reflect the local population, qualitative research cannot be representative of the population and findings cannot be generalised without further quantitative research.

Focus group approach

Each focus group was two hours long and followed a deliberative approach. To capture views and opinions before deliberation, the focus group began by circulating a pre-deliberation survey (see example in **appendix D**) to all participants. This was done to identify participants' level of awareness of OWF in their local area and Scotland as a whole.

The remainder of the session was structured into an evidence and information presentation followed by a thematic discussion. Participants were provided with an information pack at the start of each session containing an overview of current evidence around social and economic impacts of offshore wind, including a full list of references (see example in **appendix E**). The information pack was presented by the research team during the evidence session to contextualise the thematic discussion of potential impacts that followed.

The basis of the thematic discussion was a discussion guide produced to prompt in-depth discussions about potential impacts of OWF in Scotland. The discussion guide was structured around the conclusions of the review of the draft plan-level SEIA and wider literature on socio-economic impacts that was produced by the AECOM research team (see **chapter 4** of this report).

A PowerPoint presentation was also produced to aid focus group sessions. The presentation covered the same potential impacts as the information pack to prompt the thematic discussion.

Within one week after each focus group, participants were asked to complete a follow-up survey to gauge if opinions had changed after more time to reflect.

Stage 3: Analysis and reporting

The analytical approach to the study was to firstly establish a thematic framework that allowed the researchers to systematically summarise the draft plan-level SEIA and incorporate wider literature. Findings were then written up by themes in order to synthesise evidence from relevant sources coherently. The Scottish Government's research advisory group reviewed the review of the draft plan-level SEIA and literature review and, where appropriate, suggested further sources to be included. This literature review then formed the basis for the information pack provided to participants.

The next analytical step was to compare the identified themes with the detailed notes that had been taken throughout the focus groups. This was to ensure that the thematic framework was still applicable and to assess if further themes had to be added to the analysis. The summary of the focus groups by themes is provided in **chapter 4** of this report.

Following this summary of contributions, further analysis was conducted to compare the conclusions from the draft plan-level SEIA with the views of the public as voiced throughout the focus groups and the surveys. The analysis did not only highlight whether the draft plan-level SEIA's conclusions were conclusions that participants agreed with, but also what considerations and impacts may be missing or underreported according to the views of focus group participants. The specific aim of this task was to use these insights to develop tangible recommendations on how to further improve the draft plan-level SEIA, and to highlight where public opinions differ from the evidence presented. Additional to the initial objectives of the project, the research team also provided an insight into the impact of deliberation and access to information on the participants' views which was used to shape the recommendations of this report.

The recommendations resulting from this study are threefold:

Firstly, the report suggests technical improvements to the draft plan-level SEIA to address any gaps and limitations identified and to improve future project-level SEIAs.

Secondly and based on the analysis of the focus groups, the recommendations include actions for the Scottish Government and developers of OWF to mitigate any negative impacts and harness potential positive impacts to address the concerns and expectations residents living in coastal communities adjacent to offshore developments.

Lastly, the report reflects critically on the research approach itself with the aim of pointing out what worked well and what could be improved for future research studies.

4. Desk-based review of the draft plan-level SEIA and wider literature

Introduction

With the purpose of informing the deliberative focus groups and identifying the key projected and experienced impacts of OWF on coastal communities, the desk-based review consisted of two parts:

Part A: The review of the draft plan-level SEIA to support the Iterative Plan Review of the Sectoral Marine Plans for SMP-OWE and INTOG. The draft plan-level SEIA was prepared by an independent contractor.[2] At the time this desk-based review was undertaken (September 2023), the draft plan-level SEIA was emerging and in draft format. Therefore, the information contained within the review presented below is based on draft forecasts and estimates. These may be subject to change prior to the publication of the draft plan-level SEIA.

Part B: To supplement the review of the draft plan-level SEIA, a wider review of literature on the social and community impacts related to OWF and renewable energy developments was undertaken by AECOM. The aim of this was to establish a comprehensive overview of potential social and economic impacts, as well as social and economic impacts that have been identified through evaluation of existing offshore wind developments. It also allowed for exploration of gaps identified resulting from the draft plan-level SEIA.

Part A: Review of the draft plan-level SEIA

The draft plan-level SEIA presented projections of the potential social and economic impacts associated with implementing the SMP. This chapter presents a review of the draft plan-level SEIA with the aim of:

- Exploring the current socio-economic context for OWF developments; and
- Identifying where evidence gaps may exist.

The development of the draft plan-level SEIA

The methodology used for developing the draft plan-level SEIA was entirely desk-based and built on comparable studies and previous Environmental Impact Assessments (EIA) for offshore developments. It followed Scottish Government guidance on the Business and Regulatory Impact Assessment and HM Treasury's Green Book methodology. It included the following:

[2] The draft plan SEIA reviewed as part of this project was not undertaken by AECOM. AECOM is therefore not responsible for the content or approach to the SEIA.

- Scenarios relating to future offshore wind development, to establish potential scale, spatial footprint, future technologies, indicative programme for deployment and supply chain development;
- Scoping to identify relevant marine activities and interaction pathways for inclusion in the assessment;
- Assessment period of 50 years, from 2023–2072, using 2022 prices;
- Establishing a baseline for marine activities;
- Assessing negative economic impacts to marine activities in terms of increased operating costs, direct gross value added (GVA) impacts, and impacts that are identified but not quantified;
- Assessing positive economic impacts from spend on offshore wind and supply chain development;
- Assessing knock-on social impacts on individuals, communities and society (positive and negative) from the previous two impacts; and
- Assessing cumulative and combined impacts.

Social and economic impacts were projected for three scenarios – low, central and high to reflect the scale of capacity and spatial footprints of all potential developments. The projections are cast for OWE and INTOG separately.These were based on the defined Option Agreement and Exclusivity Agreement areas, and the potential installed capacity and types of technologies from the award announcements, supplemented by additional information provided by ScotWind developers through a targeted Call for Evidence in October 2022. This encompasses a total of 27.6 GW of capacity for SMP-OWE and 5.4 GW for INTOG.

The draft plan-level SEIA's analysis of social impacts was centred on a discussion of ‘social clusters’ linked to national indicators and sustainable development goals from the National Performance Framework. This assessment approach was derived from the Marine Scotland and Sciencewise (2022) commission “A two way Conversation with the People of Scotland on the Social Impact of Offshore Renewables”. The clusters with identified impacts included, but were not limited to: family life, employment, cost of living, local industry, community sustainability, transport connections, local identity and cultural heritage. Impacts on individuals were expected to be largest in the East and North East and lowest in the West, while impacts on communities were anticipated to be largest in the North East and significant impacts also observed in the North and Shetland.

The following sections summarise the projections of social impacts on individuals and communities identified in the draft plan-level SEIA by central themes for exploration in focus group discussions.

Local businesses/ economy

To identify the potential social impacts of OWE developments, the draft plan-level SEIA considered relevant marine activities and interaction pathways, particularly in the context of negative economic impacts such as increased operating costs and direct gross value added (GVA) impacts.

Both negative and positive impacts were identified. On the negative side, wider port and harbour activities resulting from OWE developments and INTOG were identified as generating negative in-combination impacts on local businesses.

The draft plan-level SEIA also reported that the direct negative GVA impacts on commercial fisheries comprised the majority of the potential cost impacts associated with OWE, predominantly in the North East area. Smaller negative economic impacts were identified for tourism, telecom cables and recreational boating. Commercial shipping contributed the largest potential cost impact associated with INTOG. However, the draft plan-level SEIA indicated that knock-on social impacts associated with economic losses in these industries required exploration.

Further potentially negative effects of renewable energy development on aquaculture, fisheries, oil, gas and shipping were mentioned. In particular, the negative in-combination impacts on fisheries might include changes to the cost-revenue profile, conflict with other vessel types, reduced efficiency of operation, increasing carbon emissions and seabed impacts. For example, the value of landings potentially affected by SMP, INTOG, existing and planned OWF, and proposed Offshore Marine Protected Area management measures was estimated at £11,925,970 over 50 years. It was not projected that this full value would be lost as some catches would move to other areas.

On the positive side, the concentration of OWE and INTOG in the East and North Eastern regions was projected to have the potential to generate in-combination impacts on other local sectors, such as aviation, power interconnectors and commercial shipping.

The draft plan-level SEIA identified potential mitigation strategies to reduce consequential impacts across sectors. This includes early engagement with affected sectors, use of smaller turbines to reduce visual impacts, burial of cables to sufficient depth or fishing-friendly cable protection and turbine foundations with minimal footprint.

The draft plan-level SEIA reported positive impacts of OWE developments, with the concentration of OWE developments in the East and North East Option Agreement areas experiencing the largest positive cost impacts. In the East, £5,000 million - £6,300 million in direct total GVA is expected to generate from OWE and £3,000 million - £3,800 million in the North East. These coastal regions are expected to experience the highest positive GVA impacts per year as a result of the concentration of construction and

installation activities between 2029 and 2033. The direct positive cost impacts associated with INTOG ranged from £180 million in the East to up to £1,700 million total GVA in the North East.

The draft plan-level SEIA indicated that both positive and negative social impacts emerging as a result of economic gain across the construction, installation and operation of OWE and INTOG required further exploration.

Employment

The assessment of economic impacts within the draft plan-level SEIA projected 11,000 to 14,000 full-time equivalent (FTE) jobs[3] expected in the direct supply chain for OWF in Scotland in any given year of the appraisal timeframe. The largest regional employment impacts associated with OWE were anticipated in the East. Employment impacts directly resulting from INTOG are 1,800 to 2,300 maximum full-time equivalent jobs. The North East was estimated to have the largest employment impacts associated with INTOG.

As a result of OWE and INTOG potential for increasing skilled job provision, the draft plan-level SEIA anticipated increased wealth of local coastal communities as a direct result of higher incomes and an indirect result of increased local spending. The new highly paid jobs within the renewable energy sector would generate larger disposable income for both local and relocated employees through reducing the net income spent on housing, food and fuel. This employment was projected to also likely reduce relative poverty. A knock-on effect of the rise in disposable income was idenfitied in the draft plan-level SEIA as increased spending on local in-land businesses and improved community sustainability. The increased wealth generated as a result of OWE and INTOG developments could improve happiness and mental health for populations residing within the coastal communities and neighbouring towns.

However, it is recognised in the draft plan-level SEIA that OWE and INTOG may catalyse job losses across local industries if their operations are compromised. In particular, a potential reduction in fish landing would result in a loss of FTE jobs within the fishing industry. The draft plan-level SEIA estimated that between 2023-2072, 57-81 FTE jobs may be lost through the direct and indirect impacts of SMP-OWE[4] while 6.7-9.6 FTE jobs could be lost as a direct and indirect result of INTOG.[5] This loss of employment could have knock-on effects for associated industries, such as the catching sector and those servicing the industry, such as transportation of landings and logistics. Thereby, those employed in the fishing industry and related sectors not taking

[3] A full-time equivalent, sometimes abbreviated as FTE, is a unit to measure employed persons or students in a way that makes them comparable although they may work or study a different number of hours per week.

[4] Of which 40-57 jobs located in Scotland while 17-24 are located outside Scotland.

[5] Of which 5.4-7.7 are in Scotland and 1.3-1.9 are outside.

up new and higher paid employment opportunities from OWE developments could experience wealth inequality as a result of unemployment.

The draft plan-level SEIA identified community engagement as an avenue for establishing effective mitigation strategies to minimise the negative impacts on employment, particularly considering the location and design of cable routes. It suggested that it should be communicated to stakeholders that although job loss is unavoidable, mitigation can minimise the severity of this impact.

Cost of living

The draft plan-level SEIA identified that the offshore wind industry could generate a negative cost of living impact as a result of increased income and in-migration.

The uptake of high-paid green jobs could increase inflationary pressures within local communities and drive up the cost of living. This impact would be felt across the whole population, however disproportionate negative outcomes are likely amongst low-income households and those who are not able to take up better paid employment. Consequently, wealth inequality is anticipated to increase within coastal communities impacted by new offshore wind developments.

The housing market could face increasing demand as a result of in-migration relating to OWE employment opportunities. Better paid job creation is a positive social impact, however the increased population within coastal towns is expected to drive up competition and house prices within local markets. Thereby, local residents not taking up new or higher paid employment may be priced out of the local housing market and be forced to rely on below standard housing.

Local services

The draft plan-level SEIA estimated the number of people that could relocate into communities across the Option Agreement Areas as a result of relocated jobs, assuming 2.13 people per household including the person taking up the job. It was estimated that 10,000-22,000 people could move into communities in the East; 8,300-17,000 people could move into the Northeastern region; 4,000-8,300 into the North; 900-1,900 into the West; and 2,600-5,400 into the Shetland Islands.

This has the potential to add pressure on local services. Coastal communities are expected to experience an in-migration of labour to take up new green jobs, which would place increased demand on current infrastructure and services, such as transport, education and healthcare. For example, the increased demand on healthcare could exacerbate long wait times for General Practitioner services, including mental health services. The increased pressure on local services could negate the positive social impacts resulting from improved wealth within these communities and may even result

in forced relocation of local residents. Whilst not explicitly stated in the draft plan-level SEIA, this could have potential implications on public health if medical appointments are unavilable.

However, on the other hand, the in-migration of workers and their families could encourage investment into the local area and the development of community services to facilitate increased numbers.

Therefore, an influx of people into communities could be seen as having both potential positive and negative outcomes, which must be balanced in any assessment. Engagement at the project level would be required to identify specific impacts relevant to affected communities and map out the projected impacts on local services.

Infrastructure

The draft plan-level SEIA indicated that the development of OWE sites would require some new infrastructure, including cable routes and sub-stations. The construction and operation of this infrastructure might be associated with negative impacts on the landscape and transport services. However, the provision of onshore infrastructure was yet to be confirmed so the significance of these impacts could not be assessed.

In terms of ports and harbours, the draft plan-level SEIA identified the potential of increased vessel traffic and activity during the construction and operation of OWF. For example, ports and harbours could experience temporary disruption during cable installation and could impact the fisheries sector which rely on port and harbour facilities. However, following completion, the level of construction traffic and activities were expected to reduce other than routine maintenance, including wet storage of turbines.

Socio-cultural impacts

The draft plan-level SEIA identified that in terms of socio-cultural impacts, increased disposable income created through FTEs in the offshore wind sector could encourage spending within local creative and cultural industries. In-migration could further support local cultural industries and establish greater interest in the culture and history of the community. The draft plan-level SEIA estimates a total GVA impact of £890 million - £1.1 billion for creative industries and between £1.3 billion - £1.7 billion for cultural industries. These socio-cultural benefits were expected to be highest where there was a greater propensity to spend, such as where new jobs were concentrated and increased disposable income was highest.

However, in-migration could catalyse a reduced sense of identity and be perceived as changing the local culture and traditions. In particular, the relocation of workers and families into areas where new green jobs are available could reduce the population who actively speak Gaelic which is more common in the North and North East of Scotland than in other parts of Scotland covered in the draft plan-level SEIA.

Recreation

The draft plan-level SEIA indicated that the offshore wind industry was anticipated to reduce the sea area available for recreational activities. The draft plan-level SEIA calculated the total negative cost impact to recreational fishing across the 50-year assessment period: within the North this sits between £1,918 - £2,740 across three scenarios and between £8,780.1 - £12,543 in the West. The potential impact on other watersports could not be quantified, as there was little information available to determine the current value of these watersports or the potential impact of offshore wind development.

However, the draft plan-level SEIA recognised that kitesurfing, windsurfing, stand up paddleboarding, kayaking and canoeing were recreational activities taking place inshore of the potential offshore wind development sites. These activities could be negatively impacted by the development of offshore wind, either directly through displacement or changing wind and wave patterns. These impacts were not anticipated to generate economically significant impacts locally, regionally or nationally, however the wider local level impacts needed to be explored through project-level engagement.

Part B: Wider literature review

This section presents a review of wider literature on social and community impacts related to OWF and renewable energy developments. The literature review was conducted by AECOM following the review of the draft plan-level SEIA to address gaps in existing evidence. This recognised the high level nature of the draft plan-level SEIA and its focus on economic impacts as well as the fact that impacts of offshore wind developments on the human environment, and the local and regional coastal communities adjacent to the projects are vastly under-researched (Glasson et al., 2022b). Criteria used to identify relevant evidence for the literature review included:

Search terms of “social/ health/ tourism/ community/ culture/ employment/ economy/ skills/ housing/ distributional effects and offshore wind farms” as informed by Glasson’s et al. (2022b) impact review;

Prioritisation of academic and grey literature from Scotland and the rest of the UK, but supplemented with international literature;

Most recent literature of the past 10 years was prioritised, but no cut-off defined.

However, it should be noted that evidence on the social and economic impact of OWF on communities was limited and often outdated. As such, evidence on onshore wind farms was included in this review wherever applicable.

Local economy and employment

Studies in Scotland, Wales and Ireland presented evidence that OWF impact direct and indirect employment through local manufacturing, construction,

operation and maintenance opportunities (Alem, et al., 2020). Wider studies concluded that foreign investment tends to outweigh local opportunities during the construction phase. For example, the turbine itself composes the largest capital cost and is typically imported, in addition to on-site installation personnel being employed from the turbine manufacturer (Glasson et al., 1988). Thus, the evidence on local employment benefits was mixed. Whilst some elements appeared to benefit the local economy, the largest capital cost and associated labour can be imported and this does not tend to benefit the local economy directly.

Marine Scotland and Sciencewise (2022) undertook a project to inform the conceptual framework of clusters of "social values" used to support the assessment of social impacts within the draft plan-level SEIA. The framework intended to be used to help to make social impact assessments more true to life, based on lived experience and also illustrates the use of the public dialogue methodology for community engagement. The public dialogue expressed concerns that employment opportunities could compromise community sustainability and resilience. Participants perceived that local people would be outcompeted when accessing new green jobs and barriers to employment should be minimised to retain young talent within coastal communities. Thereby, local residents felt that opportunities from offshore renewable developments should be localised and guaranteed for locals (Marine Scotland and Sciencewise, 2022, p. 61).

On occasion, renewable energy developers preferred to bring in teams of experienced and technical experts to fill new job roles within construction contracts. This is to ensure value and reduction of risk as documented in the newly introduced supply chain commitments which detail how products, materials, and labour are sourced to develop, manufacture, construct, and operate the offshore wind projects (Crown Estate Scotland, 2023b). Coastal communities are likely to benefit from training provision and employment in maintaining and managing new renewable wind infrastructure during its operating life (Marine Scotland and Sciencewise, 2022).

The short-term nature of construction related employment was perceived to disadvantage small coastal towns through creating a 'boom and bust' scenario (Marine Scotland and Sciencewise, 2022). Sudden changes in the job market can be a cause for concern in small and more sensitive communities. However, the delivery of training could enable local residents to upskill and become long-term employees with beneficial transferable skills that could improve their employability in the future. Several participants of this research confirmed that they would undertake training or upskilling for a job in renewable energy.

Whilst at the time of the review there was no statistical evidence of the long-term employment benefits of the offshore wind industry, the Aberdeen Offshore Wind Farm case study presented evidence of short-term construction employment opportunities. This study revealed that in the context of a short construction period and small-scale nature of this project,

the majority of labour was already employed and experienced (Glasson, et al., 2022a). For example, 50% of the construction workers were Dutch which reflected the nationality of the construction contractor and the main benefits of the offshore construction stage were experienced by individuals residing outside Aberdeen.

Marine Scotland and Sciencewise (2022) research recognised the wider implications of the offshore wind industry on local businesses. Knock-on effects of relocated labour could benefit businesses within the coastal area, especially small businesses which could be sustained for future generations. Contrastingly, unemployment in local industries was identified by participants. In particular, the potential loss of employment in fisheries was anticipated should small boats be obliged to change routes or become excluded from sea areas to facilitate OWE infrastructure.

The impact of new infrastructure (such as cables) on shipping and fisheries was unclear. Cables are typically buried to 1-4m below seabed to ensure long-term cable integrity and to prevent damage by fishing vessels, ship anchors or seabed movement (The Crown Estate and the Offshore Renewable Energy Catapult, 2019). Burial depths are determined based on an industry standard (burial protection index and/or cable burial risk assessment). However, the Maritime and Coastguard Agency advises that in view of the serious consequences resulting from damage to submarine cables, vessel operators should take special care when anchoring, fishing, dredging, or engaging in underwater operations near areas where these cables may exist or have been reported to exist.

A postal survey revealed that neutral or positive attitudes towards offshore renewable energy developments are held by the majority of fishers (81%) (Alexander et al., 2013a). The diversification of rural island economies, employment, wealth growth and further socioeconomic benefits were recognised as potential impacts of offshore energy. Further interviews with fishers anticipated a loss of earnings and time through the deployment of marine renewable energy devices in the most productive fishing grounds (Alexander et al., 2013b). The displacement of fishing sites could increase travel distances, spend on fuel and competition. The proximity and awareness of nearby developments was identified as an influence on attitudes. For example, fishers operating from island ports, who are less exposed to current offshore developments, were more likely to have positive attitudes than those living on the mainland, who were likely to live in close proximity to developments. Despite the negative attitudes, the majority of fishers recognised there is a need for offshore renewable energy developments. It should be noted that at the time of writing, these studies (Alexander et al., 2013a and 2013 b) were undertaken 10-years ago and the perceptions of fishers' may have changed since.

Distributional Impacts - Community Benefit Funds

Distributional impacts in the context of new transmission and electricity infrastructure are defined as policies intending to redistribute funds from all electricity consumers to communities that host new transmission network infrastructure (Department for Energy Security & Net Zero, 2023). With the aim of enabling communities to benefit, funding from developers to local communities living in closest proximity to the development can be allocated through what is known as 'Community Benefit Funds' (Cowell, et al., 2012). The Energy and Climate Change Directorate (2019) define community benefits as voluntary initiatives for communities "to build a lasting relationship with the renewables industry that supports Scotland's transition to a low carbon future".

Cowell et al. (2012) Milbourne (2011) and Zsamboky et al. (2011) proposed that the location of onshore and offshore renewable wind developments is important when considering the impacts on local communities. These developments are typically located in geographically isolated areas that are reliant on low-paid seasonal workers, experience higher than average deprivation, youth outmigration and have ageing populations. Developments gravitate towards remote areas with high levels of wind and previously industrialised environments which already have supporting infrastructure. Cowell et al. (2012) emphasised the importance of delivering long-term resilience to these disadvantaged communities through benefits schemes.

The level of funding provided by onshore wind projects is typically defined by £ per megawatt of installed capacity per annum. Typically, these funds are allocated in response to community needs, for example on sports equipment, social activities, educational opportunities and sustainable energy measures (Cowell et al., 2012). The Energy and Climate Change Directorate (2019) have committed to promoting community benefits at a value equivalent to £5,000 per installed megawatt per annum. The Scottish Government Community Benefit Register confirmed that 214 onshore projects are currently offering community benefits packages from Onshore Renewable Energy and over £15 million in community benefits have been paid in the last 12 months from 2018-2019.

The community benefits provided by the developer Centrica across three OWF on the east coast of England were shaped by community consultation to understand the needs of the area and potential impacts of the project. These OWF are located in close proximity to socially and economically disadvantaged communities (Lincolnshire Research Observatory, 2011), some of which are vulnerable to sea level rise (Zsamboky et al., 2011). Consequently, the community benefits delivered included school visits from a local environmental educationalist to educate children on wind energy projects and a £115,000 donation to the Gibraltar Point nature reserve to boost tourism (Cowell et al., 2012). Later disruption in Skegness from installing electrical cable connections led to the developer funding heating and hot-water systems in the local community centre.

Community engagement with the intent to improve social outcomes was significant in empowering communities and generating positive perceptions of wind farms and energy more widely. Aitken, Hagget and Rudolph (2014) concluded that public engagement tended to generate the most social acceptance when it verbally engaged with the community, adapted the proposed scheme as a result and recorded how community concerns were being addressed. The Energy and Climate Change Directorate (2019) encouraged consultation with affected communities at an early and pre-consent stage as best practice to build mutual trust in the development process.

However, the scale at which Community Benefit Funds are managed is an important consideration in enabling positive impacts to be shared across the local community. The cost of managing this community funding in small communities could outweigh the funding benefits (Cowell, 2012). Additionally, it is challenging to objectively define the boundaries that define the 'locality' of a development and who is eligible to benefit from any benefit provision (Devine-Wright and Sherry-Brennan, 2019). The parish-level focus of funding could neglect structural vulnerabilities affecting the wider area and other constituencies who use the parish resources but do not live within the defined boundaries (Cowell, 2012).

Community Sustainability

In the literature review, themes such as housing, energy prices, local services and redevelopment initiatives were discussed more widely under the topic of community sustainability. The literature highlighted that potential new employment opportunities and investments as a result of OWF could help create more sustainable communities. However, at the same time, OWF could increase pressure on local services and infrastructure.

For example, in Marine Scotland and Sciencewise (2022) research, participants identified how new employment opportunities and related upskilling could help sustain coastal communities. Since rural locations are vulnerable to depopulation, participants expressed concern that if the number of inhabitants was not increased the community may become unsustainable. The development of the offshore wind industry offers valuable employment opportunities that could encourage the relocation of workers and their families. Despite these potentially positive impacts, older participants expressed concern for the natural environment, local resources, types of employment and benefits from OWE developments for future generations (Marine Scotland and Sciencewise, 2022). The legacy of OWE developments was considered an important social impact for consideration.

With regards to local services, other participants of the study expressed concern that already stretched resources could experience further strain through relocated jobs increasing local populations (Marine Scotland and Sciencewise, 2022). This was echoed by a case study in Argyll where up to 300 additional residents were expected to arrive on the island in phases over

a five-year period from 2010-2015 as a result of offshore wind, dependent on partners and families joining and if local residents were directly employed (Argyll Renewables Communities, 2010). This study perceives significant consequences for housing, water, sewerage, schooling and transport as well as potential impacts on the island's social, cultural and architectural heritage.

Wider local service impacts were perceived as a result of OWE development's reliance on current transport networks including road, rail and ports. The offshore wind industry in Argyll demonstrated the potential for interference with shipping routes and increased capacity for ferry, road and air transport. Consequently, space for local people travelling by air or ferry was limited while congestion increased alongside the risk of accidents (Argyll Renewables Communities, 2010).

However, studies recognised that investment from the offshore wind industry could fund redevelopment initiatives within the local area. For example, in Argyll desk-based research and consultation with developers perceived that new OWF developments could increase interest in upgrading port facilities (Argyll Renewables Communities, 2010). In Stornoway for example, the new Deep Water Terminal will accommodate offshore wind farm vessels, and additionally, also be suitable to serve large cruise liners, which is expected to help boost the islands' tourism industry (Stornoway Port Authority, 2022). Development of the terminal will also increase the capabilities and flexibility of the Arnish fabrication yard at Stornoway. Further, the Masterplan for Orkney Harbours sees the development of new harbour facilities to service the new offshore wind industry, but also benefit the wider economy (Orkney.com, 2023). In the US, a new port is being developed at the New London State Pier facility to serve the expanding offshore wind industry whilst also promoting local economic development, job creation, and community benefits (Agerbæk et al., 2022; Memija, 2023).

Similarly, participants from coastal locations across Scotland anticipated that OWE developments could aid the improvement of local transport and technology with knock-on effects on local businesses trade and facilitating recreational, sporting and cultural events (Marine Scotland and Sciencewise, 2022). These redevelopment opportunities are dependent on the actions of the offshore wind developer. Should the developer not take responsibility for upgrading the transport system, the local area could experience deterioration and existing connections may have to operate beyond capacity.

Further discussions in Marine Scotland and Sciencewise (2022) report expressed uncertainty regarding the impact on energy prices. Some participants perceived beneficial impacts of a reduction in energy prices for local residents where OWE developments are in close proximity. However, participants in Islay expressed concerns that developers may choose to increase prices in the long term and increase the local cost of living. Many participants requested further information on the impact of renewables on energy prices. The Contracts for Difference (CfD) mechanism implemented by UK Government prevents costs from rising as it provides investors with

certainty over the future of their investments, with a fixed price for each MWh of electricity they generate (Department for Energy Security and Net Zero, 2023).

Literature exploring OWE development's impact on housing prices was limited and contradictory. Available studies of the perceived impacts echoed the potential for inflationary pressures to increase house prices outlined in the draft plan-level SEIA. For example, Environmental Statements have expressed community concerns regarding the devaluation of properties as a result of visible offshore wind (Glasson et al., 2022a). However, empirical studies concluded no significant evidence of house price depreciation as a result of visual OWF's from the property or the nearest beach (Jensen et al., 2018).

Alem et al. (2020) reviewed empirical evidence assessing the impact of onshore wind developments and drew implications about offshore impacts from this. The review defined an 8-14km sphere of influence within which onshore wind developments could act as a negative influence on the housing market. Typically, offshore wind sits outside this 14km distance from inhabited households and consequently Alem et al. predicted that offshore wind is not likely to contribute inhibiting noise or shadow effects to justify lower house prices.

Health

Whilst there was some evidence available on the impact of green and blue space on health (Labib et al., 2020), there was a substantial evidence gap with regards to impacts of offshore windfarms speficially on human health. Empirical studies exploring the potential health impacts of wind energy tended to focus on onshore wind developments (e.g., Michaud et al., 2013, Health Canada, 2014, Feder et al., 2015, Michaud et al., 2016). However, the outcomes may be considered in the context of offshore wind to imply that the distance and noise levels of offshore wind are unlikely to generate negative health impacts for coastal communities. For example, Qu (2021) found that from a sample of 359 UK residents, 16% noticed wind turbine noise and 11% were annoyed by the noise. Of those who found the noise annoying, 80% lived within 850m of a turbine and 90% lived within 900m. Residents who noticed the noise reduced to 8.1% when the turbine was situated over 900m away from the place of residence. OWF are therefore likely to be too far away from residents to cause any noise disturbance.

An interesting finding with regards to the debate around monetary compensations for onshore developments with potential implications for offshore, Qu (2021) also found that for onshore wind developments, feelings of annoyance towards wind turbines are statistically associated with increasing levels of noise, particularly when exceeding 35 dB(A). However, residents who indirectly benefit from the project through community benefit schemes recorded lower levels of annoyance (Health Canada, 2014). Similarly, Qu (2021) concluded that the percentage of people who noticed

turbines increased from 5-47% between a sound interval below 30 dBA and above 40 dBA and those who were annoyed by turbine noise increased from 3-30%.

In sum, the evidence focused on the human health impacts of onshore wind farms and was explored further in the next phase of this project through focus groups with local residents.

Tourism and recreation

With regards to impacts on tourism and recreation, the literature review identified mixed views and experiences. Overall, whilst some studies looked at negative impacts, many studies did not find negative impacts, and tourists were even found to have positive views of OWF.

Rudolph (2014) indicated that rural coastal areas are increasingly reliant on the tourism industry for economic stability, especially when manufacturing and agricultural sectors are diminishing. Therefore, the perception of successful tourism being associated with a natural landscape is threatened by the installation of OWF and drew out resistance (MacLellan, 1998; Byzio et al 2005). Similarly, the physical landscape change associated with wind farms was perceived as inappropriate for the local setting and disruptive to the cultural character of the area.

In Tiree, the perceived potential for visual disruption from OWF has historically led to opposition discourse and anticipated negative impacts on local tourism and wider local businesses that would benefit from tourist spending (Rudolph, 2014). Recreational tourism including windsurfing, sailing and boating is a large source of revenue in Tiree and there was a perception that wind farm sites could negatively affect the wave quality and restrict these water sport activities.

Further, a case study of Argyll recognised the potential negative impact OWF could have on the marine ecotourism industry. Offshore wind developments placed in key wildlife areas could deter wildlife and cause the industry to relocate tours, potentially further offshore (Argyll Renewables Communities, 2010). OWF could also disrupt breeding and migration which could threaten the marine tourism of Argyll, a key sector for island economies.

Despite the perception of negative impacts, empirical evidence from questionnaires, polls and interviews confirmed that tourists express neutrality or positivity towards OWF developments. Literature revealed a contrast between on the one hand local residents' perceptions of how tourism would be impacted, and on the other hand empiricial evidence of how tourists' decisions and attitudes had actually changed as a result of offshore wind developments.

Studies across Europe, US and Australia evidenced no or negligible change in tourist numbers, experience or expenditure following the construction of OWF (Aitchison, 2004; British Wind Energy Association, 2006; Frantal and

Kunc, 2011; Glasgow Caledonian University, 2008). For example, Polecon Research (2013) identified no reduction in tourist expenditure or numbers after the construction of Denmark's Horns Rev OWF according to accommodation, food services, recreational activities, traffic volume and employment data.

Within Scotland, residents of Aberdeen identified positive impacts in terms of tourism. For example, they stated that OWF are visually attractive,are a symbol of local pride for participating in the renewable energy initiative, are linked to educational activities in the local area, and encouraged local boat tours (Glasson, et al., 2022b). Further, MORI (2022) interviewed 307 tourists face-to-face across five locations in Tarbet, Inverary, Oban, Campbeltown and Lochgilphead and found that 43% of tourists felt equally positive and negative about wind farms, 28% felt a generally positive effect and 15% found a completely positive effect and only 1% found a completely negative effect.

Smythe et al. (2021) conducted a study using interviews and a survey on the impacts of the United States' first OWF on recreational fishers' experience found that anglers report enjoyment of OWF as an enhanced fishing location, due to catch and non-related aspects of the experience. Survey data confirmed that fishers, particularly those who fished near wind farms, believed the wind farm has benefitted fishing. Respondents also valued the wind farm as symbol of progress towards green energy. Overall, results suggested that OWF do not necessarily conflict with recreational fishing, but instead OWF can enhance fishing destinations. The impact on fishing is discussed in the first sub-section of this chapter.

The British Wind Energy Association (2006) and German Offshore Wind Energy Foundation (2013) supported that OWF could develop a new form of tourism due to the increased importance of renewable energy, known as 'green tourism'. Local authorities can enhance tourism potential through harnessing marketing promotion and using OWF as local attractions for tourists, encouraging new boat trip businesses and associated tourist spending (Glasson, et al., 2022b). For example, the Nysted OWF attracted tourists through "The World of Wind" exhibition (German Offshore Wind Energy Foundation, 2013).

Conclusions of desk-based review

The key findings form the desktop review are as follows:

According to the draft plan-level SEIA projections, there may be job losses and reduced profits across some local industries. However, both the draft plan-level SEIA and wider literature identify that significant job creation is expected as a result of OWF – directly, indirectly and induced.

Both the draft plan-level SEIA and wider literature identify a risk that expertise sourced from outside Scotland may result in a loss of opportunities for the local workforce and businesses, and literature highlighted that training to upskill

residents during operation and maintenance is required. This aligns with the aims of the newly introduced supply chain commitments which detail how products, materials, and labour are sourced to develop, manufacture, construct, and operate the offshore wind projects (Crown Estate Scotland, 2023b) and for which targets on local employment and training could be introduced.

Conclusions from the draft plan-level SEIA and wider literature expected that higher disposable income may be spent in the local economies resulting in an increased spending across local businesses. However, at the same time, there may be pressures on the local community due to the cost of living and in-migration may drive up competition and house prices.

Studies in literature suggested that OWF can generate investment into the local area but could also cause increased pressure on current services and infrastructure due to an influx of workers.

Whilst literature indicated that there was public resistance with regards to the impact of the offshore wind industry on the natural landscape, studies with tourists revealed neutrality or positive attitudes towards OWF. There was limited evidence on any negative impact on recreational activities.

With regards to cultural impacts, the draft plan-level SEIA predicted that higher incomes may lead to higher spending within local creative and cultural industries, while in-migration could impact local culture negatively and reduce the use of Gaelic.

No evidence of OWF impact on human health were found in the draft plan-level SEIA or wider literature.

Any impacts as a result of decommissioning of OWF were not taken into consideration in the draft plan-level SEIA as it was assumed that sites will be repowered after 25 years rather than decommissioned.

The above findings were included in an information pack that was provided to the participants of the focus group. They also formed the basis of the expert talk provided at the outset of focus group session setting out both evidence that was based on projections and evidence based on empirical data.

5. Deliberative research

Focus groups

This section sets out the key findings of the deliberative research element of the study. As mentioned in **chapter 3** of this report, the deliberative research took the form of focus groups. Five virtual focus groups were held with a total of 44 participants taking part, of which:

- 9 participants were at the focus group in Lewis;
- 9 participants were at the focus group in Orkney;
- 10 participants were at the focus group in Buckie;
- 10 participants were at the focus group in Dundee; and
- 6 participants were at the focus group in Stonehaven.

A breakdown by gender, age, occupational status and educational level is shown in the table below. Relative to Scotland's population, the sample is slightly skewed towards more male participants and disproportionately more participants who are 18–34 years old.

Table 1: Demographic breakdown of participants compared to Scottish national average

Demographic category	Characteristic	Focus group	Scottish national average[6]
Gender	Female	43%	52%
	Male	50%	48%
	Non-binary	5%	-
	Prefer not to say	2%	-
Age	18-34	50%	30%
	35-64	34%	50%
	65 and over	16%	20%
Occupational status	Employed	48%	43%
	Self-employed	20%	14%
	Unemployed	2%	8%
	Other (e.g., student, retired, looking after family/home, sick)	30%	35%
Qualifications	Degree	39%	31%
	Highers, Advanced Highers, other	48%	53%
	Other qualifications	2%	6%
	No qualifications	9%	10%
	Prefer not to say	2%	-

[6] The most recent datasets available have been used for the Scottish national average. This includes: Scotland's Census (2023) and ONS (2021 and 2023).

Summary of focus group discussion

The thematic discussion followed the central themes outlined in the evidence session: local economy and employment, distributional impacts, local services, infrastructure, tourism and recreation, socio-cultural and human health. The research team provided a high-level recap of the predicted and evidenced impacts before inviting discussion on each theme and wider impacts where applicable.The discussion covered the following:

What are participants attitudes towards the perceived and evidenced impacts that are set out in the draft plan-level SEIA and wider literature? Are the findings applicable in the local area?

How are the perceived and evidenced impacts expected to interact with the specific local social and economic conditions of the local area? For example, considering the demographic profile, deprivation levels, unemployment and importance of coastal locations for tourism and recreation.

Do participants think that there will be additional socio-economic impacts wider than those presented in current literature?

Across the five focus groups, local economy, employment and distributional impacts were discussed at length. In particular, local employment opportunities and Community Benefit Funds were most commonly mentioned by participants, while local services, infrastructure, tourism and recreation impacts were mostly perceived as negligible. Socio-cultural and human health impacts were discussed the least across all themes.

Due to the small sample size and the qualitative nature of the focus groups, differences in contributions by characteristics such as age, location, gender, and qualifications/backgrounds can only reported on tentatively. Where applicable, these differences are mentioned in the summary of discussions within each theme below. A breakdown of opinions based on the non-representative survey is provided at the end of this chapter, but should not be assumed to be applicable to the wider public.

Local economy and employment

Discussions within this theme largely focused on the potential for OWF to establish local employment opportunities. In terms of the local economy, opportunities for local businesses to supply components, equipment and support services to foster a local supply chain were recognised. Indirect local economy benefits were anticipated through the in-migration of labour encouraging expansion and development within the local area, as well as spending within local businesses.

The focus group discussions recognised the potential for employment opportunities across the construction, maintenance and operation stages of OWF developments. In particular, the maintenance stage was identified as

the main source of long-term local employment with the support of training and upskilling schemes.

However, all five groups expressed a concern that local residents may not benefit from new employment opportunities as they may be filled by non-UK developers located in countries with more competitive employment laws. One group in particular suggested the Netherlands, Denmark and Germany as largely composing imported labour within Scotlands offshore wind industry. According to some participants, the current trend of multinational companies outweighing national or community ownership of wind farms had established a "fundamental problem" that offshore wind expertise was more likely to come from overseas. One group felt this was a "long-term strategic economic failing" and a missed opportunity to create sustainable local employment through incentivising wind turbine manufacturing within Scotland, rather than relying on imported infrastructure and skills. Similarly, another group suggested that CES could encourage investment in manufacturing and constructing OWF within Scotland in an effort to localise employment and minimise the presence of multinational companies who "capitalised off Scotland's national resources".

Discussions further highlighted the importance of offering training in the renewable energy industry in order to establish long-term employment opportunities for residents and new career potential for younger generations. One group expressed excitement and interest towards the new offshore wind industry, especially for young engineers. Participants highlighted that this should be a locally driven initiative because multi-national companies were expected to prioritise cost over time and thus favour experienced imported labour. In addition, those affected by the decommissioning of the oil and gas industry could be set up with alternative employment in offshore wind and transfer their skills rather than facing unemployment.

Respondents felt that training opportunities should also be targeted at underrepresented groups or those with no existing route into the green economy who could otherwise experience disproportionate impacts. For example, further discussions of training advocated the provision of funding and grants for local training opportunities to prevent exclusion based on wealth.

Discussions highlighted the potential exclusion of women from typically male dominated industries engaging with renewable energy, such as engineering and maintenance. One group felt that engaging women at ground level and presenting the offshore wind industry as a component of the evolving maritime industry could overcome the 'paradigm' of the energy industry being male dominated. Others participants highlighted that depopulation trends, especially across island communities, could be eased through inspiring young generations to partake in the renewable industry. In order to retain young talent, participants recommended that learning about the renewable sector, in particular wind energy, should be integrated into school curriculums as soon as possible.

One focus group felt that the transition to net zero economy was being prioritised over community wellbeing. Participants expressed concern that the transition to the net zero agenda was being pushed without taking into consideration the potential for negative community impacts that could impact mental health and wellbeing. For example, it was perceived that there was a lack of available information, limited community engagement and that government bodies were positioning offshore wind as the only viable solution to the climate crisis, which created a sense that communities did not have a voice in the development of offshore wind. Following this, comments suggested that people may not be willing to take up employment in new green jobs that they were less informed about.

Distributional impacts

Discussions revealed a range of views regarding the potential of in-migration and any distributional impacts as a result. Some participants perceived an attraction of workers and families to the local area as positive, while others expressed uncertainty about how the industry would be maintained in the long-term and consequently perceived in-migration as a short-term impact. For example, participants expressed that the maintenance and operation of wind farms may require minimal labour and eventually wind farms would be self-sufficient, therefore in-migration was not expected for longer than the construction period.

Participants from island communities expressed that the offshore wind industry had the potential to attract workers and their families if they were placed in a suitable location. Island participants felt that island regions were not suitable for OWF due to the high degree of naturalness and sensitivity to human damage. Further, the rurality of these communities could deter in-migration for new jobs especially if they were perceived as short-term.

Indirect population impacts of the offshore wind industry were also recognised. The stimulation of the local economy through in-migration and local supply chain impacts, as well as wider local job creation, could attract people of working age and families into the area. On the other hand, the presence of OWF could deter people looking to relocate due to visual impacts.

In terms of the cost of living, discussions focused on the impact on energy bills and local housing markets. One group acknowledged that offshore wind was a cost-effective investment and therefore should lead to lower energy costs, especially for affected communities. There were some limited discussions around what constitutes an affected community, as boundaries are not clearly established. This was also pointed out in the literature (see **chapter 4**). However, the dominance of multinational companies that were viewed as prioritising profit over local benefits may reduce the likelihood of this benefit. Many participants agreed that if OWF reduced the cost of living for the immediate community, they would be more approving of the developments.

Some participants anticipated potential impacts of OWF on the local housing market and a slight rise in house prices as a result of increased competition, however this increase was felt to be subject to local circumstance. For example, participants perceived that lower house prices in Dundee would lead to less significant impacts compared to island communities who were already experiencing a housing crisis. High house prices were identified by participants as an existing problem within rural island communities which they expected to worsen should new wind farms generate in-migration. Currently, participants expressed that new market properties tend to be purchased by new wealthy residents or for the purpose of vacation rentals. Therefore, some participants were concerned about the lack of affordable housing supply for younger generations and that their communities may experience increased out-migration and depopulation as a result.

Finally, a discussion of Community Benefit Funds revealed a divide between someparticipants who view funding as an "underhand marketing tactic" and others who felt that funding can provide much-needed financial support to local communities, community projects and infrastructure needs. For example, one group highlighted that community benefits would not "compensate for a loss of an iconic traditional landscape", however low-income residents tend to support the offshore wind industry in exchange for short-term financial relief from funding initiatives. Despite this divide, most groups recognised the need to manage community benefits transparently and address specific needs through involving residents in allocating funding.

Alongside perceptions of community benefits being referred to by some participants as a "bribery" exercise, other participants also raised the view that the "past mismanagement of Scottish Government finances" had reduced local residents' trust in the delivery of positive impacts through Community Benefit Funds.[7] For example, the delays and over spending involved in the construction of ferries for CalMac and the Edinburgh tram line were identified as a government mismanagement.[8] Further, participants voiced concerns about funding being short-term and only available for a limited amount of time and the amount of funding reaching local communities being minimal, so little benefit was seen by residents.

Throughout discussions, some participants displayed a preference for monetary benefits in the form of £ per megawatt, while others preferred sustainable community initiatives such as educational programmes. In light of the cost-of-living crisis, some participants favoured monetary benefits for communities to allocate based on where council and government funding has been cut back, for example in arts and culture services, sports and leisure, and wellbeing initiatives. Further, in cases where community funding would take the form of new infrastructure provision, such as a new community

[7] Please note that Community Benefit Funds tend to be managed by the project developer, not by the Scottish Government as perceived by the participant.

[8] Please note that this project was managed by the Edinburgh City Council, not by the Scottish Government as perceived by participants.

centre, participants stressed the need for this infrastructure to be a sustained benefit rather than a one-off investment. In particular, small coastal towns may struggle to gain any long-term benefit if they are unable to afford maintenance of community benefit investments.

One group discussed a top-down versus bottom-up approach to Community Benefit Funds. On one hand, some participants felt that the tax revenue from OWF should be governed by a central body and equally distributed across local authority budgets. This approach could prevent creating wealth inequality for local communities who did not have community councils to apply for community funding. Similarly, participants agreed it was challenging to identify the 'locality' boundaries and who was eligible to benefit. Therefore, a top-down approach was perceived to maintain equality and prevent exclusion, enabling everybody to benefit. Other participants expressed support of a top-down approach, but revealed a preference for the benefits of a bottom-up approach to local communities disproportionately impacted by OWF. Support for targeted local compensation and investment was expressed in these cases.

Local services

There was scepticism regarding the number of workers and families that might relocate into local areas. Consequently a few participants anticipated minimal impact to local services. However, many others perceived that in-migration – if in high numbers – could place additional pressure on local services that are already stretched, especially healthcare services and the local education system. Participants shared their experiences of oversubscribed nursery facilities, families travelling across towns to schools with capacity and years-long wait times for healthcare treatments. Participants supported in-migration and related opportunities as positive impacts of OWF, however investment into local services would be required to maintain the ratio of local services to population.

One group recognised that offshore wind developers should not be held responsible for local service failings that pre-exist OWF developments. Participants acknowledged that local services and infrastructure were governmental issues and if the local or national government failed in their educational, healthcare and related objectives, OWF developers should not be expected to deliver investment above and beyond what the industry was responsible for.

Further concerns regarding the costs of new facilities were expressed, especially if the local community were responsible for the maintenance of these services.

Infrastructure

Perceived impacts on current local infrastructure were mixed across the five discussions. Most participants perceived the majority of OWF infrastructure to

be delivered by sea and erected by a barge, therefore placing no additional pressure on local resources. On the other hand, participants were concerned that the additional demand and usage of local roads as a result of transporting turbines, could place them in a state of disrepair that local authorities cannot afford to restore. For example, in rural regions with no dual carriageway roads, a convoy of trucks delivering turbine components between 7am and 5pm was expected to significantly increase congestion for locals. In locations with a main rail line, this was identified as a preferable option for the transportation of OWF components.

Some participants also reflected on the potential impacts of necessary onshore infrastructure related to the offshore wind industry, in particular pylons. The presence of pylons along the A9 corridor – "through the heartland of the Scottish countryside" – was perceived as unaesthetic and disturbing to the natural landscape. This also demonstrated that participants were aware of impacts to areas further inland than the immediate coastal community as a result of onshore infrastructure of OWF. This infrastructure was also expected to increase as the National Grid connections expanded with the offshore wind industry. Participants acknowledged that in order to experience the benefits of offshore wind they may also encounter negative consequences. However, participants wanted local communities to be informed of final construction proposals or potentially forming grid connections underground to mitigate some opposition.

One group considered the decommissioning impacts of OWF in 20 to 25 years. Wind turbines tended to be considered as carbon neutral, however turbines are mostly made of steel or other non-renewable materials. According to one participant, recycling turbine blades was impossible and therefore, the long-lasting impacts of offshore wind infrastructure were yet to be considered. This aspect was not considered in the draft plan-level SEIA which assume that OWF will be repowered after 25 years, not decomissioned.

A few groups felt that a lack of government investment limited the presence of infrastructure to support the offshore wind industry. For example, one participant noted that the dualling the A96 Corridor from Aberdeen to Inverness would have supplied road infrastructure for developing offshore wind along the east coast, however from their knowledge these plans had now been reconsidered. Similarly, respondents discussed how in the Buckie Harbour Masterplan consideration had been given to developing a new Deep Water harbour facility for loading boats and dedicated facilities for offshore wind operation and maintenance, however a lack of funding resulted in this being postponed. Therefore, there was a view that there had not been the necessary investment in the local infrastructure to facilitate the new offshore wind industry to date.

Tourism and recreation

Participants' perceptions of tourism impacts were divided between OWF attracting visitors interested in eco-tourism and OWF deterring tourists as a result of the visual disturbance. Several participants identified OWF as a "sign of modernity" and change, especially amongst younger generations who could perceive turbines as technological progress and problem solvers. However, others expressed that the visual impact of turbines was likely to discourage tourists who travel to see the un-spoilt landscapes of Scotland. One participant recognised the importance of magnitude when considering these visual impacts, with one or two turbines along the coast considered more acceptable than larger wind farms. Another participant expressed that while there could be a curiosity element to OWF now, over time the aesthetics and appeal of the industry could depreciate.

Some participants reflected however that tourism impacts may be neglible, especially for tourists who had never seen the landscape of Scotland before and may not know any different to the presence of OWF. Further, a few participants felt that ecotourism would not benefit Scotland in particular. Comparison was drawn with the Netherlands, where green tourism expanded due to OWF bringing a new element to the flat landscape. However, participants felt that Scotland had more to offer from its natural landscape, so green tourism may be less of a benefit.

In terms of recreational impacts, a few participants mentioned the potential disruption in accessing the open sea for recreational sailing, windsurfing and diving. The majority highlighted that most OWF were too far offshore to intersect with recreational activities and impose any danger. However, one group identified the most significant safety impacts could be during the construction phase and negligible during the operational phase. Fishing trawlers may be excluded from sea areas during construction, while smaller boats are still able to sail amongst OWF but may experience changed passing and escape routes. Therefore, participants felt there was a need to educate and mitigate safety concerns for recreational activities during construction.

Socio-cultural

The majority of participants felt that there were no socio-cultural impacts relating to OWF developments, while some acknowledged the potential introduction of new cultures to coastal communities. A few participants expressed that "change is normal" and many communities in Scotland already had transient populations. Participants acknowledged in-migration as a frequent occurrence since people had become more mobile, therefore OWF were not expected to impose a significant change to local dynamics.

However, there were also participants who expressed concern about the retention of language and cultural identity, especially Gaelic. Participants acknowledged that often residents spoke English so visitors or relocated

residents did not feel excluded, however local language could be lost as a result. There was concern amongst some participants that in-migration could cause the percentage of the population speaking Gaelic to drop below a certain percentage at which the Gaelic speaking community would depreciate exponentially.

On the other hand, larger towns, especially on the east coast were not perceived as a monoculture and were considered outward looking. Participants expressed those cultural impacts were not anticipated here because they felt that Gaelic was not spoken in larger towns and visitors tended to adapt to the existing culture.

Human health

The thematic discussion of human health focused on mental health impacts. Only a few participants anticipated noticeable mental health impacts. One group felt that mental health issues would have been documented in research if these were significant, considering, in their view there have been studies conducted across the UK and Europe.

There were participants that acknowledged positive mental health impacts through the potential for offshore wind to improve services through community benefits, such as medical centres and community centres. Further, the presence of OWF could mitigate eco-anxiety for younger generations. One particpant explained that they understood eco-anxiety as anxiety surrounding climate and ecology changes which were predicted to reach crisis point and create uninhabitable spaces. Therefore, witnessing a local transition towards renewable energy and addressing this climate crisis could be beneficial for mental health. Similarly, while some participants expressed a dislike towards OWF, they accepted it as necessary and a progressive mechanism for reaching net zero.

However, the potential for negative impacts on mental health were also recognised, especially in terms of visual obstructions to the landscape. Wind turbines were perceived as “cold objects” humans were not familiar with, and that they disrupted the peacefulness of coastal retreats obstructing the natural landscape and producing background noise. Further, one participant was concerned that the potential influx of OWF workers could worsen mental health if medical facilities were not able to absorb additional demand for appointments and wait times increased as a result.

Wider positive health impacts mentioned by participants were contributions to long-term health by reducing air pollution from fossil fuel-based power generation. This suggests that the participants directly associated future long term health with OWF rather than short-term impacts.

Mitigation

The focus groups ended with a discussion of potential mitigation strategies and alternatives to OWF. This discussion was guided by the following two questions:

- What could make OWF more acceptable in your local community?
- What alternative to OWF would you suggest?

A recurring suggestion across all five locations was for developers and the Scottish Government to engage in an "open and transparent dialogue" with coastal communities proximate to OWF. Promoting active engagement and involving residents in the decision-making process could address concerns, as well as provide accurate information on the positives and negatives of offshore wind projects for those likely to be affected. One participant suggested an informative local Town Hall discussion to communicate any upcoming plans and present "facts, figures and hard evidence" to residents.

Within this dialogue and wider communications about OWF, one focus group stressed the importance of accessible information in order for residents to understand "what they are sacrificing today for the future". It was perceived that often documentation on offshore wind was technically complex and consequently excluded local residents with limited knowledge. Therefore, information should be accessible in simple English for any reader to understand.

The majority of participants expressed that more effective management of Community Benefit Funds would increase communities' acceptance of local OWF. Participants suggested the following mitigation strategies in regard to community benefits:

- A bottom-up approach engaging with affected communities to determine the most appropriate type of funding to best meet local needs;
- Exploring the potential for community OWF ownership in order to secure tangible benefits for the local area;
- Community benefits delivered through reducing electricity costs for local residents specifically;
- Community Benefit Bunds delivered through offshore wind apprenticeship programmes for school leavers;
- Community Benefit Bunds delivered through the provision of affordable housing or an 'option to buy' scheme for young people in affected communities where locals could be priced out of the housing market as a result of increased competition from in-migration. For example, Dounreay housing estate was built for relocated workers of the nuclear power industry;
- Establish a publicly owned Scottish Renewable Energy Fund, taking inspiration from the Norwegian Sovereign Wealth Fund, to deliver lasting national as opposed to local economic prosperity directly to residents of the

host country. This fund could be utilised to ensure healthcare remains free and provide free education, so Scotland nurtures an increasingly educated population;

- The provision of new or improved local services to communities experiencing increased demand as a result of in-migration, particularly GP surgeries, dentists and schools.

In order to facilitate effective investment into local services, participants supported a bottom-up approach. Participants expressed concern that Scottish Government may proceed with offshore wind plans for the "greater good of energy security" regardless of local needs. However, they felt that engagement at a community level with those living in closest proximity to the scheme was valuable in identifying local need and making an informed decision.

Further mitigation for affected communities included "levelling-up" mechanisms. For example, participants suggested that when purchasing a house, a proportion of this money should be diverted towards the development of local services to manage overcrowding. Similarly, should new housing estates be required to facilitate an influx of workers in the offshore wind industry, the housing developers should make financial contributions towards upgrading local services.

Discussions of the procurement stage proposed the inclusion of community benefits and employment commitments across all future offshore wind projects. This would ensure that developers were held accountable for returning value to the affected community and following through with commitments. For example, participants suggested restricting regions from which labour is recruited, committing to a certain percentage of local employment, and prioritising local residents for employment in the renewable job sector.

In terms of alternatives, most participants suggested alternative renewable energy sources including solar, tidal and wave power, while others proposed the non-renewable alternative of nuclear power. A few groups suggested the combination of renewable energy mechanisms as opposed to being solely dependent on wind energy, either through enhancing wind turbines using solar panels or simultaneously feeding tidal power into the same grid as wind energy.

General views towards OWF: pre and post deliberation

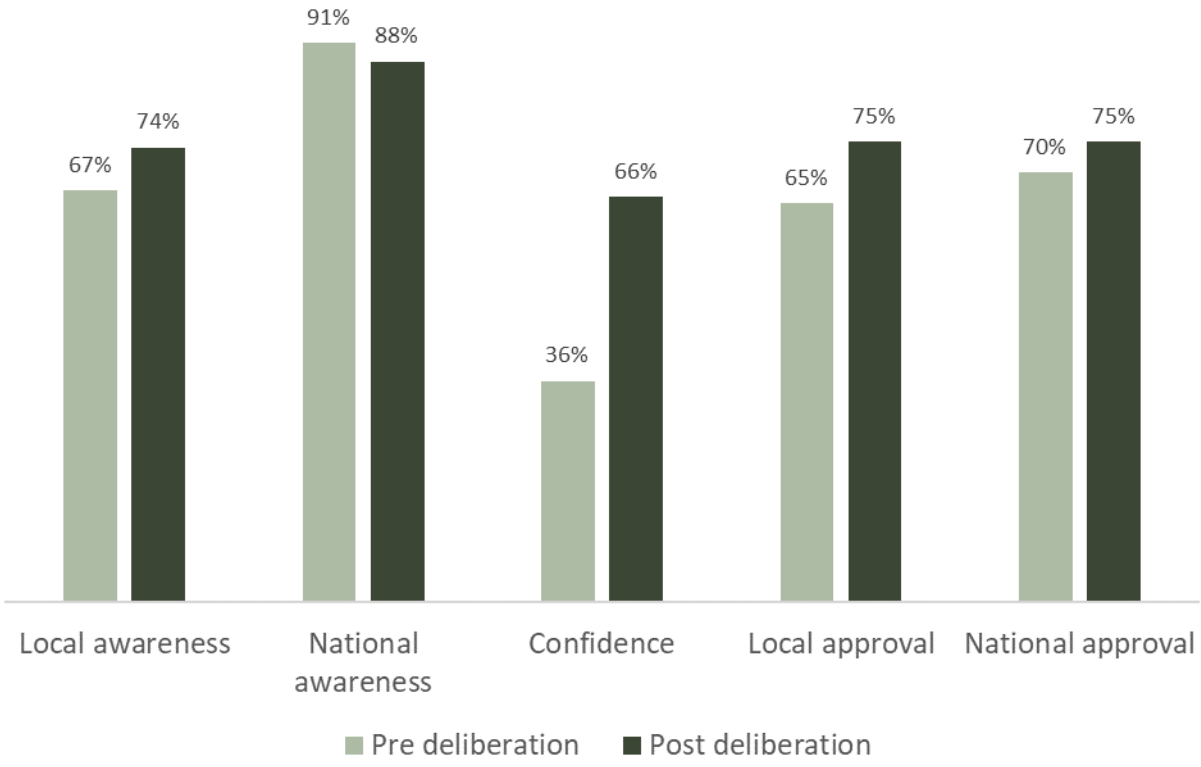
Deliberative research provides valuable in-depth insights into participants' views on a specific topic and how these views potentially change when participants are provided with information and given the opportunity to discuss and reflect. As agreed with the Research Advisory Group, information packs were distributed to participants at the event and not prior. This was to limit preconceived ideas and opinions about OWF and for the focus to be on the discussion of social impacts.

To capture any changes in opinions, participants were asked to complete a survey to demonstrate their existing levels of awareness and perceptions of offshore wind both before the focus groups and within one week after the session. The purpose of this secondary survey was to gauge if participants' opinions on offshore wind had changed after deliberation and private reflection. The survey asked the same questions to the survey participants completed at the start of each focus group session. Of the 44 participants, 40 submitted a response to the post-focus group survey. All 44 participants had submitted a response to the pre-focus group survey.

The key findings of this survey are highlighted below indicating substantial change in level of knowledge, and to a lesser extent more support for OWF. The survey is not representative of the wider public and only captures the views of the participants of the focus groups. Whilst specific data is provided, this is merely to indicate where change has occurred, not to allow any comparisons to the wider public with regards to their views on OWF. If repeated as part of a larger survey, results may change.

Within the survey, participants were asked to indicate their levels of awareness of local and national OWF, confidence in levels of knowledge and understanding of OWF and levels of approval of local and national OWF. Figure 1 below highlights the pre-deliberation and post-deliberation outcomes for these questions.

Figure 1 Pre and post deliberation levels of awareness, confidence and approval of OWF



Note: In figure 1, awareness is measured on a scale of 'yes' and 'no'. Confidence represents participants who felt 'confident' and 'very confident' of their knowledge and understanding of OWF on a 5-point scale. Similarly, approval represents participants who 'approved' and 'strongly approved' of OWF on a 5-point scale both locally and nationally.

In terms of **awareness**, the majority of participants (91%) were aware of OWF located across Scotland prior to the focus group discussions, while fewer (67%) were aware of future OWF developments planned in their local area. Post deliberation, awareness of OWF in the local area rose from 67% to 74%.

Participants' **confidence** in their knowledge and understanding of OWF increased substantially following focus group discussions. The number of those who felt confident or very confident rose from 39% to 86%, while those who did not feel confident or not confident at all decreased to 0% following focus group discussions.

Similarly, **approval** for both local and national OWF rose following focus group deliberation. In Scotland, those who approve and strongly approve of OWF rose 70% to 75% post deliberation, and for OWF in the participants' local area there was an increase from 65% to 75%.

Demographic analysis of participant responses was undertaken with regards to age and gender. Whilst the focus groups included non-binary participants, the sample was too small to establish or report on significant differences in views.

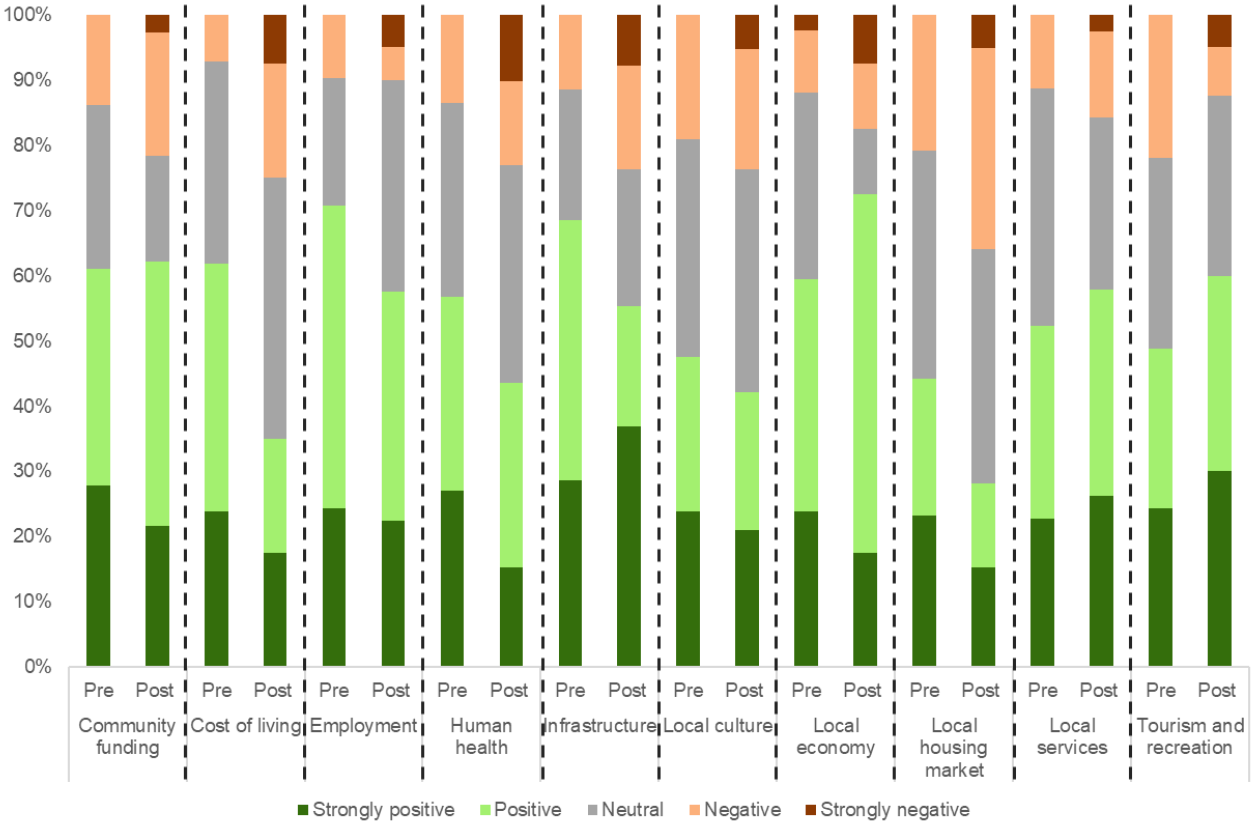
Most notably, the number of participants under 65 who were **confident** in their knowledge and understanding of OWF more than doubled from 29% to 67%. Three quarters of women felt confident following the focus groups compared to only on quarter before deliberation, while half of men felt confident or very confident before deliberation and compared to 95% post deliberation.

In terms of **approval** for local OWF, pre deliberation approval was highest amongst 18-34 year olds prior (76%) compared to other age groups. Whilst the approval of this age group remained stable, it rose from 53 to 86% amongst those aged 35-64 years. With regards to **approval** of OWF in Scotland, a positive shift was seen for people with Highers/ Advanced Highers qualifications from 65% to 84%.

Comparatively, men were more **approving** of OWF in Scotland than in their local area pre deliberation, at 77% and 68% respectively. This approval rose to 84% and 89% respectively as a result of the focus groups. Women felt similarly about OWF in Scotland and in their local area (68% approval) with only marginal changes post deliberation to 72%.

The pre and post deliberation survey also asked participants for their view on the potential impacts of OWF by theme. These views appear to become more nuanced and less positive after the focus groups (see figure 2 below).

Figure 2: Pre and post deliberation - Expected impact of OWF by theme



Pre deliberation, only one participant felt strongly negative about OWF impacts on the local economy. Post deliberation, between 1 to 4 participants felt strongly negative across all themes, especially with regards to human health.

Similar to the pre-deliberation results, participants felt positive and strongly positive about impacts on the local economy post deliberation and had developed a more positive view of impacts on tourism. More than half of all participants felt positive or strongly positive about community funding, employment, local services, and infrastructure.

Half of the participants recorded in an open-text box that their views were not significantly changed through the focus group discussions and remained as positive or negative as before, while others now recognised the potential for positive contributions to the immediate community in terms of employment, wealth growth and community funding. Two participants suggested that there were benefits outweighing the negative impacts of OWE.

Also recorded in the open-text box section of the survey, were comments from participants who remained concerned. Some feared that benefit commitments for communities would not be followed through, the health and wellbeing of residents would not be prioritised and affected communities had limited scope for input and choice in new developments. Engagement with communities was necessary "to ensure that 'potential' becomes reality".

Some participants expressed support for the renewable industry and the potential benefits offshore wind could offer. However, they felt that appropriate size and location had not been considered in the implementation of new developments across Scotland.

The interpretation of results is challenging as there was no additional follow-up with the participants after the post-deliberation survey. However, from the commentary and the substantial changes in participants' confidence in their knowledge, it appears that overall support for OWF in participants' local areas had improved due to more access to information on how communities could potentially benefit and be impacted, whilst support for OWF in Scotland overall remained as positive as prior to the deliberation. This could indicate that for the particular sample, when provided with tangible and local-level information, opinions became more positive. This was particularly the case for women who were both less confident in their knowledge and less supportive of OWF than men, but became more supportive and confident as a result of the deliberation.

However, the results also show that scepticism towards positive impacts on specific areas such as employment had increased as a result of the discussions. This is not surprising as in all focus group benefits for the local workforce were questioned. However, the example of tourism and recreation illustrates how exposure to evidence supporting neutral or positive impacts helped to improve opinions slightly and that scepticism towards OWF is correlated with lack of knowledge. Thus, engaging with groups that are traditionally less involved or exposed to the debate may result in relatively larger shifts in opinions.

Please note results should be interpretated with caution due to the small sample size of 40-44 respondents and should not be assumed to apply to the wider public.

6. Relevance of findings to draft plan-level SEIA

This analytical chapter synthesises the findings from the desk-based review of the draft plan-level SEIA with feedback from the focus groups reflecting on the following key components:

- How did the focus group participants respond to the predicted impacts of the draft plan-level SEIA and were there any differences in views and reactions depending on local social and economic factors?
- Did participants present any additional areas of socio-economic impact that have not already been covered in the draft plan-level SEIA, probing a wider set of possible impacts?

The first aspects are addressed through the analysis of each draft plan-level SEIA theme as set out in the desk-based review. These components are analysed in conjunction with one another because participants' responses to the draft plan-level SEIA demonstrated how the predicted impacts could interact with local factors, particularly in terms of house prices and local culture.

Additional areas of socio-economic impacts discussed by participants going beyond those mentioned in the draft plan-level SEIA are covered in the subsequent analysis. These include community benefits, tourism and health.

The following analysis is reflective of participants' views and experiences of OWF and is not representative of the wider population of Scotland. The findings below should not be generalised without further quantitative research.

Local business/ economy

Participants did not contest the draft plan-level SEIA forecasts regarding the predicted impacts on the local economy. There was recognition of potential high level economic growth impacts, especially for local businesses through fostering a local supply chain and increased spending as a result of in-migration.

However, participants did not comment on the positive and negative predicted GVA impacts despite prompts from the research team. Discourse largely focused on employment impacts instead. This could be a result of participants lack of knowledge and awareness of GVA levels and how the local economy was expected to respond to changes resulting from OWF. Research with business representatives could add value to the assessment of potential local economy impacts and refine the conclusions of the draft plan-level SEIA within this theme.

Employment

The employment projections included in the draft plan-level SEIA were met with scepticism. Participants expressed that the FTE jobs expected as a direct result of

OWF were likely an overestimation of reality. They anticipated that the offshore wind industry would not be able to deliver on these estimates. The proportion of employment opportunities delivered in the construction stage compared to operation and management was also scrutinised. Participants anticipated the majority of employment being delivered during short term construction contracts from overseas contractors, while the long-term operation and management roles delivering long-term sustainable employment for local residents would compose the smaller proportion of opportunities. Therefore, participants felt that the employment prospects contained within the draft plan-level SEIA misrepresented and overestimated the benefits of OWF to local residents.

Due to the perception that local residents were likely to be outnumbered by labour sources outside of Scotland during construction, participants discussed the scope for local communities to benefit from new employment opportunities. While the draft plan-level SEIA identify the estimated jobs within each Option Agreement Area, many participants suggested the introduction of a mandatory requirement for local employment as part of any development to ensure that employment opportunities would be available to local residents and prevent work from being outsourced completely by multinational organisations dominating the offshore wind industry in Scotland.

Participants also raised the risk of employment opportunities excluding certain demographic groups that are more likely to be underrepresented in the offshore wind industry and therefore are less likely to benefit, such as women, older workers and low-income groups.

Cost of living

According to the projections in the draft plan-level SEIA, the offshore wind industry could generate a negative cost of living impact as a result of increased income and in-migration. The uptake of high-paid green jobs could increase inflationary pressures within local communities and drive up the cost of living. However, focus group participants counteracted the draft plan-level SEIA and proposed that local OWF developments provided an opportunity to improve the cost of living for local communities through employment and Community Benefit Funds, especially in light of the current cost of living crisis.

The draft plan-level SEIA projected an increase in house prices as a result of OWF. However, this was received with both scepticism and agreement across the five focus groups depending on location. Participants living in coastal mainland Scotland, such as Dundee, were doubtful that increasing house prices would have a significant impact because prices were comparatively low in these areas. However, participants across island communities echoed the draft plan-level SEIA's concerns regarding competition driving up house prices. Further, these participants proposed that inflating house prices would lead locals to relocate due to the absence of an affordable housing stock, especially younger generations, rather than rely on below standard housing as predicted in the draft plan-level SEIA.

Further to the projected cost of living impacts, focus group discussions specifically identified the potential for offshore wind to lead to a reduction in energy prices for local residents in close proximity to developments. Participants encouraged the government to harness this opportunity to reduce energy bills for affected communities and potentially wider populations, to produce a positive cost of living impact.

Local services

Participants were sceptical of the draft plan-level SEIA's accuracy in estimating the number of people who could relocate for a job in the offshore wind industry. The majority of focus group discussions disputed the range of 900-22,000 people relocating across Scotland, suggesting this was an overestimation. Despite the researchers reinforcing that these projects were dependent on location – with the draft plan-level SEIA providing separate ranges across the North, North East, East, West and Shetland Islands – participants were doubtful that for example the East of Scotland would experience in-migration totalling 10,000 to 22,000 people as projected. The focus group participants were also interested in where these people were projected to relocate from and the proportion expected to migrate from other Scottish regions compared to in-migration from abroad for work.

Further, participants disputed the draft plan-level SEIA hypothesis that in-migration would catalyse investment into the local area. Participants were doubtful that Scottish ports and habours would have any involvement in the offshore wind industry due to the perception of most infrastructure being imported and constructed by barge. Instead, participants expressed concern that the offshore wind industry could inhibit existing port services, such as cruise terminals.

However, participants were in agreement with the draft plan-level SEIA prediction that local service pressures could be exacerbated by in-migration where services were perceived to be already under pressure. Similar to the draft plan-level SEIA, participant discourse largely focused on the impact to educational (e.g. schools and nurseries) and healthcare services (e.g. dentists and GPs). Although, participants discussed that they did not anticipate locals would relocate as a result. Instead, there was an expectation that service provision should increase in communities whose local services were impacted by the offshore wind industry.

Infrastructure

While the impacts of new infrastructure were limited within the draft plan-level SEIA, the potential for negative impacts of new infrastructure on the landscape were acknowledged by participants. In particular, discussions identified pylons that would carry the generated electricity, by land across the UK, as a major landscape obstruction while cable routes and sub-stations were not commented on. However, it should be noted that terrestrial elements such as electricity transmission and grid connections are beyond the scope of this study and were therefore not part of the focus group discussion, unless brought up by the participants.

More generally, participants expressed that they were not aware of many impacts on infrastructure as a result of OWF. This indicates that the public may want to know more about infrastructure development associated with OWF.

Socio-cultural

Participant discourse on socio-cultural impacts centered on local culture and language, while there was no discussion of the draft plan-level SEIA prediction that total GVA would increase for creative and cultural industries.

There was an agreement with the draft plan-level SEIA projection that local populations actively speaking Gaelic could decrease as a result of in-migration, however this was dependent on location. Participants who were residents of island communities with Gaelic speaking populations agreed with this predicted impact and expressed concern that the cultural identity of their communities could be lost as a result of the offshore wind industry. On the other hand, participants living in mainland Scotland felt that they experience more transient populations and there are no Gaelic-speaking residents, therefore they are less concerned about any cultural changes.

Recreation

The majority of participants expressed disagreement with the draft plan-level SEIA's projected recreational impacts, with participants stating that activities were taking place too far inshore to experience displacement due to OWF. There was no direct debate of the cost implications to recreational fishing.

Additional socio-economic impacts

The focus group discussions were not limited to the projected impacts within the draft plan-level SEIA. Participants raised a number potential impacts for consideration going beyond those identified in the draft plan-level SEIA and listed above.

Additional to the cost of living impacts outlined in the draft plan-level SEIA, participants acknowledge the potential for distributional impacts through implementing community benefit mechanisms. As set out in the thematic discussion, focus group discourse centred on the use of Community Benefit Funds to increase procedural justice[9] and acceptance of OWF within affected communities.

Beyond the draft plan-level SEIA, participants acknowledged the potential for tourism impacts as a result of OWF. Some coastal locations across Scotland are reliant on the local tourism industry which led participants to identify avenues that

[9] Procedural justice in the context of offshore wind refers to fairness in decision-making and policy-making. The principle of procedural justice is required to achieve social justice and enable those affected by a decision to have power in the decision-making process. Further information available at: Are climate policies fairly made? | Joseph Rowntree Foundation (jrf.org.uk)

the offshore wind industry could contribute growth to local tourism, as well as inhibit the attraction to coastal areas. These avenues are further elaborated in the preceding thematic discussion summary.

Focus group discussions further indicated the potential for human health impacts as a result of OWF, in particular impacts on mental health. Despite evidence of potenital health impacts being limited in the draft plan-level SEIA and wider literature, participants identified that the presence of OWF could reduce eco-anxiety amongst local residents, especially younger generations. While the visual impacts of OWF could negate the benefits of coastal retreats and Scotland's naturalness on mental health.

7. Recommendations

The recommendations from this research are three-fold. The first set of recommendations are targeted at refining the findings of the draft plan-level SEIA based on the analysis above. These recommendations may apply to the draft plan-level SEIA or, where specified, to project-level SEIAs conducted by the developers for specific OWF developments. Secondly, recommendations are provided to enhance the positive impacts and minimise potential negative impacts of the offshore wind industry in Scotland. These recommendations are largely based on mitigation suggestions from participants during focus group discussions, alongside wider contextual analysis. Thirdly, a number of limitations and recommendations for future research are listed.

Technical recommendations

Wider social focus: SEIAs, both at the plan and project level, tend to focus on employment and economic impacts, and social impacts tend to be underreported. Whilst economic impacts should remain an integral part of any SEIA, the findings from the focus groups and the wider evidence review emphasised the importance of social impacts such as health and distributional impacts. We therefore recommend that both project- and plan-level SEIAs in the context of OWF also take these areas of impact into account. It may be difficult to model these impacts, however recognising wider social impacts at a high level could make SEIAs more comprehensive. Furthermore, we recommend:

- **Disaggregation of themes:** Tourism was not covered separately in the draft plan-level SEIA and was only indirectly included through the assessment of recreational impacts. However, based on the evidence available on the impacts on tourism and the discussions during the focus groups, we suggest including tourism impacts as a separate topic in the draft plan-level SEIA, not least due the sector's importance to some coastal communities.
- **Consideration of demographic factors:** Where possible, both plan- and project-level SEIAs should consider the groups within society that are likely to be disproportionately affected. For example, whether job creation is likely to disproportionately benefit groups that are overrepresented in offshore wind sector jobs. We therefore recommend producing plan- and project-level SEIAs alongside social-based statutory impact assessments that the Scottish Government is required to undertake, for example Equality Impact Assessments, Fairer Scotland Duty Assessments, and Island Communities Impact Assessments, to ensure that any findings are integrated and consistent.
- **Scoping of potential impacts:** The analysis shows that there is some discrepancy between the themes covered in the draft plan-level SEIA and those discussed during the focus groups and desk-based research. We therefore recommend for future plan-level SEIAs that the Scottish Government, developers and/or authors of plan-level SEIAs conduct early

scoping studies including primary research to explore what potential impacts communities may identify and to also help educate on misconceptions. Scoping studies at an early stage could help inform the themes and approach of plan-level SEIAs ensuring that the themes covered are as relevant and comprehensive as possible. This could also apply to project-level SEIAs. This would be distinctly different to formal consultations, as scoping studies could be conducted before any plans or project are fully defined and do not need to be based on a formalised plan to consult on.

- **Specificity of projections:** Whilst not always technically possible especially for plan-level SEIAs, we recommend that SEIAs provide more detail with regards to employment data projections. For example, many focus groups participants wanted to know specifically where workers would come from (i.e., local or from abroad). However, these specific projections may be more feasible at the project level.
- **Robustness of evidence:** Some of the claims made in the draft plan-level SEIA (e.g., impact of OWF on waves and therefore on recreational activities) were questioned by focus group participants and supporting evidence from the wider literature review was limited. We therefore recommend ensuring that all claims are based on robust evidence and to highlight where this is limited. A reviewer independent from the developers or government could provide additional quality assurance to support the inclusion of impacts. For plan-level SEIAs such as the one considered in this study, this independent review should be commissioned and paid for by the Scottish Government. For project-level SEIAs, these should be paid for and commissioned by developers.
- **Data:** Project- and plan-level SEIAs tend to rely on quantitative data only. However, some social impacts and more disaggregate economic impacts may not be quantifiable at the SEIA stage, especially for plan-level SEIAs. We therefore recommend that the Scottish Government conducts additional primary research with local communities and businesses where evidence is limited, for example on impacts on human health. This could be done through collecting qualitative evidence either to support quantitative findings or, where quantitative data is limited, using qualitative data to assess and identify impacts.
- **Accessibility:** Due to the technical and detailed nature of impact assessments, key findings and their relevance to affected communities can be challenging to understand as highlighted by many participants. We therefore recommend publishing an easy-read version of the draft plan-level SEIA and any future project-level SEIAs in the context of OWF.
- **Mitigation:** The draft plan-level SEIA reviewed for this study focused on the projection of impacts, but underreported or excluded mitigating measures to counteract negative impacts or ensure full utilisation of positive impacts. Stakeholder engagement should be considered in order to include relevant mitigating measures, ownership of any measures and accountability in the draft plan-level SEIA.

Policy recommendations

Wider policy recommendations are listed below.

First and foremost, we recommend a more **systematic and strategic approach to stakeholder involvement** at all stages. Specifically, this means that scoping research could be done before SEIAs are conducted (see recommendation above), stakeholders could be engaged throughout the life span of project- and plan-level SEIAs and, as already done by the Scottish Government, formal consultations should be conducted. In all focus groups, participants mentioned the need for involving communities in close proximity to planned OWF from the start of the process, going beyond one-off stakeholder engagement. Based on the findings from this report, we therefore suggest the following:

- **Informed opinions:** The level of knowledge on OWF was low amongst most participants. However, almost all participants felt more confident in their knowledge as a result of the evidence session and more equipped to discuss potential impacts. We therefore recommend interactive stakeholder engagement using accessible and easy-read information, transparently describing the potential impacts on coastal communities, including negative and positive impacts. This will help people to establish informed opinions and be equipped to provide their own views on how OWF can be used to benefit their communities or to identify risks.
- **Objectivity:** Many participants were sceptical of information provided by the UK or Scottish Government, and we therefore recommend involving independent experts when communicating findings of the draft plan-level SEIA to stakeholders to provide additional validity.
- **Means of engagement:** We recommend engaging with residents using a variety of engagement methods, including online webinars or workshops as well as in-person townhalls. Particular attention should be paid to ensuring diversity of attendees. From our research, we noticed men and more educated residents for example were more likely to engage than women or those with no or low levels of qualifications. It is also important to undertake diversity monitoring to understand difference of opinion and experience amongst different groups.
- **Consistency of engagement:** All participants agreed that benefits needed to be sustainable and take a long-term approach. We therefore recommend engaging with communities at several crucial points to work with communities in order to harness the benefits of OWF more effectively. For plan-level SEIAs these points could be at an early scoping stage (see recommendations above). For project-level SEIAs, we would suggest for engagement to take place at the scoping/planning stage, during construction, the operational phase, and the decommissioning stage. For feasibility considerations and to avoid response fatigue, we suggest for engagement to take place between every 2 to 5 years.
- **Communication:** To enable more acceptance from communities, we suggest focusing on better demonstrating the benefits of the offshore wind industry, such as using investments into ports as powerful case studies.

We however also suggest being transparent about the limitations of any benefits and to communicate decisions to communities clearly and promptly.

Sharing the benefits: We recommend that the Scottish Government and developers consider the following suggestions presented by focus group participants on helping to ensure that communities harness benefits of positive impacts and negative impacts of OWF are mitigated:

Community Benefit Funds: When recognising the impact of OWF on local communities, many participants agreed with the idea of funding for community-led initiatives as a result of the profits made from OWF. These initiatives should be sustainable and take a long-term approach. For example, facilities such as buildings should only be provided if the community had the necessary access to funds to maintain these. We understand Community Benefit Funds are managed by developers and therefore recommend that developers should be required to do this as part of the consenting process.

Social Value: Many participants asked for benefits to the local economy and communities to be incorporated into the procurement stages. For example, offshore wind developers could be required to provide a certain proportion of jobs to the local workforce and/ or those from under-represented backgrounds. Training initiatives could become part of the social value commitments for developers as well and help to build sustainable career paths for the local community. This is already the case as part of the supply chain commitments, however, specific mandatory targets with strong monitoring and evaluation processes in place could further contribute to social value being produced locally.

Monetary benefits: Some participants also suggested being compensated at the household-level for any negative impacts, for example, by reducing electricity bills and/ or direct payments.

Sustainability: Participants highlighted that any investments and benefits needed to be sustainable and not temporary investments that result in additional pressures on communities in the long-term, e.g., through maintenance of any services or facilities.

Just Transition: Detailed assessments of job losses as a result of the phasing out of oil and gas need to be mapped against new jobs being created in the renewables sector. This is to identify gaps in the Just Transition and help put mitigating actions in place.

Innovation: To maximise the usage of OWF, we recommend for the offshore sector and the Scottish Government to continue to explore and support innovation to couple renewable energy mechanisms such as tidal and wind power.

Evaluation: In response to the scepticism amongst participants of employment benefits materialising, we recommend including an evaluation of plan- and project-level SEIAs at the outset and half-way through its appraisal timeframe to compare projected impacts with impacts observed to that stage, and to verify findings and assumptions. This is also to take into account any impacts due to decommissioning

of wind turbines as this is not fully considered in the current draft plan-level SEIA which only assumed that after 25 years sites would be repowered rather than decommissioned.

Research limitations and recommendations

As with any research project including primary data collection, there are a number of limitations to consider and recommendations to be made for future research.

Firstly, the number of participants was limited, and findings can therefore not be assumed to apply to the overall population in coastal Scotland. Whilst this is the norm for qualitative research, we recommend for future projects to allow for a brief nationally representative survey.

Secondly, budget and timescales of this project were limited and therefore did not allow for larger-scale deliberative workshops. Whilst the deliberative focus groups were successful and participants engaged well with the information they were provided with, we would recommend organising longer or more sessions per group in order to allow for more time for discussion and engaging with the information. This would have also allowed for additional experts to contribute to the sessions.

Thirdly, whilst not a limitation, we noticed reluctance from the majority of people recruited to attend in-person engagement. We would therefore suggest in the future to concentrate on virtual engagements with the option of in-person engagement only if the demand is there.

Fourthly, however, online engagement is particularly challenging for those groups that are less confident with the usage of smartphone and laptops/ computers. Whilst the research team offered individual support before and during each session, this potentially made it more difficult for some groups to engage fully. However, at the same time, the ability to switch cameras off and make use of the chat function also may have resulted in higher participation from other participants that otherwise would not have chosen to engage for various reasons.

Lastly, we recommend exploring whether further research into the potential effects of offshore wind on human health is required. This was identified as an evidence gap in the desk-based review.

8. Conclusion

In response to the initial commission of the Scottish Government Offshore Wind Directorate on behalf of Scottish Ministers, this study met its research objectives and aims by providing further research into the social and economic impacts of OWE on coastal communities in Scotland in the following ways:

Reviewing of the findings obtained from the draft plan-level SEIA that is currently being conducted to support the Iterative Plan Review of the Sectoral Marine Plans for Offshore Wind Energy and Innovation and Targeted Oil and Gas decarbonisation. The findings of this study were that the draft plan-level SEIA largely focused on economic modelling projections while the assessment of social impacts remained at a relatively high level. In the focus groups, discourse on potential social impacts centred on a discussion of 'social clusters', including employment, cost of living, local services, and local identity, and identified that individuals in the East and North East and communities in the North East could experience the largest impacts. Some areas of interest were missing from the draft plan-level SEIA, such as an impact on human health or impact on groups within society that are likely to be disproportionately affected.

Building on and developing these findings further by reviewing wider academic literature and case studies on social and economic impacts on coastal communities. This wider literature review provided empirical evidence which largely supported the overall findings from the draft plan-level SEIA, but in some cases, conflicted with the draft plan-level SEIA. For example, a more nuanced and positive view on the impacts on tourism and attitudes of fishers towards OWF was found in the wider literature. On the other hand, case studies from the literature suggested that employment opportunities may be more likely to benefit workers outside Scotland than provide employment opportunities for the local workforce. An evidence gap on the impact of OWF on human health was also found.

Testing and refining the draft conclusions from the draft plan-level SEIA using primary research with members of the public and collating their views on the impacts identified and beyond. The study involved five deliberative focus groups with residents of coastal locations. Discussions were informed by an information pack summarising the draft plan-level SEIA and literature review. A change in opinions and knowledge was captured through a pre- and post-deliberation survey. The survey and discussions revealed that the majority of participants were not opposed to OWF but felt that the industry could improve the management of potential impacts. Whilst overall support for OWF increased as a result of the informed discussion, participants remained sceptical with regards to employment impacts in particular. Discussions showed that whilst most participants accepted that OWF may be developed adjacent to their communities, they emphasised that a just transition to net zero was needed to ensure positive impacts benefit the local communities. This should be done, for example, through more innovative stakeholder engagement, Community Benefit Funds, commitments to

creating local social value with ambitious targets and accountability as part of each development, and potential negative impacts need to be mitigated.

Recommending improvements of the draft plan-level SEIA and project-level SEIAs, and making wider policy suggestions: The study highlighted gaps in the draft plan-level SEIA as well as the wider literature and specific recommendations on how to enhance the draft plan-level SEIA and future project-level SEIAs have been made. This includes further disaggregating findings locally, and thematically. The key recommendation is for future plan- and project-level SEIAs to involve stakeholders to scope potential impacts at an early stage, to test assumptions and to include appropriate mitigating actions. Qualitative data should be included where no quantitative data is available. The accessibility of the SEIA should be considered as currently it may be too technical for a lay audience. Lastly, projections were perceived to be too vague by participants and should, if possible, be more specific. With regards to wider policy recommendations, the study revealed that if presented with accessible information, members of the public take more interest in OWF and can develop an informed opinion. This enables them to identify positive and negative impacts and suggest appropriate mitigating actions specific to their local context. Communication and consistency of engagement can help build trust and develop sustainable solutions to sharing benefits with local communities. More research should be conducted at a larger scale to verify these findings further as this study was based on a small sample.

Limitations of this study: The findings of this study are based on the review of the draft plan-level SEIA, a wider literature review, and on the contributions of the participants of the focus groups. As with any qualitative research, the findings should not be assumed to apply to the overall population in coastal Scotland. A survey could help compare the findings against a nationally representative sample. Another limitation is that some participants may have changed their views and opinions differently, had they been provided with more time to engage with the information material. For future deliberative research, this should be considered.

Appendix A Selection of coastal locations for primary research

Aberdeenshire, Stonehaven

Urban/ Rural

Stonehaven is an accessible rural area.

Density of OWF

There are two operational OWF in direct proximity (Aberdeen Bay and Kincardine).

Stages of OWF

A high number of ScotWind leases have been granted for fixed and floating projects in vicinity:

- Fixed ScotWind 1 lease: Thistle Wind. BP and EnBW
- Floating SwotWind 1 lease: SSE Renewables, CIP and Marubeni, Falck Renewables and BlueFloat Energy, ScottishPower Renewables and Shell, and Vattenfall and Fred Olsen Renewables

Socio-economic relevance

Significant effects are expected for ports in the North/ Northeast including expected impact on the fishing industry and communities, and changes in employment. Impacts on housing and provision of services due to increased volume of workers are also expected.

Dundee City

Urban/ Rural

Dundee City is a large urban area

Density of OWF

No OWF is in operational in direct proximity.

Stages of OWF

Two developments consented in direct vicinity:

- Seagreen 1a (consented but subject to amendment application, expected commissioning date 2024)
- Inch Cape (expected commissioning date 2024/25, consented with CfD application pending)

Under construction:

- Seagreen 1 under with expected commissioning date 2023
- Neart na Gaoithe with expected commissioning date 2023

Socio-economic relevance

Significant distributional effects for Dundee and other larger towns and ports with regards to effects on their housing market are expected, alongisde an increase in commuting to cities with good transport links such as Aberdeen or Dundee. Better paid jobs due to OWF may have knock-on impacts in terms of indirect and induced jobs, with potentially greater positive effects where there are concentrations of jobs, such as in Aberdeen or Dundee.

Buckie, Moray

Urban/ Rural

Buckie is identified as 10 miles east and west along coastline including Portessie, Findochty, Cullen, Portknockie, Lintmill, Kingston, Spey Bay, Portgordon, and is an accessible/ remote rural area.

Density of OWF

Operational OWF in proximity include Beatrice and Moray East

Stages of OWF

Consented:

- Moray West (expected commissioning date 2024/25; CfD application pending);

Lease granted Scotwind 1 fixed:

Ocean Winds (Caledonia);

Lease granted Scotwind 1 floating in wider area for:

2x Renantis, Orsted, BlueFloat Energy (Broadshore, Stromar)

Floating Energy Allyance (Buchan)

Scottish Power Renewables and Shell (Marram Wind)

INTOG Leasing:

BlueFloat Energy/Renantis Partnership

Socio-economic relevance

Potential impact through new infrastructure required (e.g., cables to substations) and an important fishing grounds in the Moray Firth have already been affected by OWF and associated cabling.

Western Isles

Urban/ Rural

The Western Isles, including Lewis and Harris, is a very remote rural island.

Density of OWF

No OWF operational in direct vicinity.

Stages of OWF

Lease granted ScotWind 1 fixed:

Spiorad na Mara (Northland Power);

Lease granted ScotWind 1 floating:

Talisk (Magnora) and

Havbredey (Northland Power)

Socio-economic relevance

SEIAs mentions potential impacts due to tourism, recreation and fishing.

Orkney Islands

Urban/ Rural

Orkney Islands, inclusive of the whole local authority, is a very remote island.

Density of OWF

No OWF operational in direct vicinity.

Stages of OWF

Lease granted ScotWind 1 fixed:

RIDG, Corio Generation and Total Energies (West of Orkney)

Lease granted ScotWind 1 floating:

Thistle Wind Partners (Ayre)

Renantis, Orsted, BlueFloat Energy (Stromar)

Socio-economic relevance

Potential distributional impacts on fisheries, including landings and associated employment; in addition to large social impacts anticipated to the east and west due to the European Marine Energy Centre and Orkney taking on the role of an OWF hub.

Appendix B Socio-economic profiles

The research team conducted a desk-based research activity to capture the socio-economic profiling of the five coastal locations. During the focus group discussions, these profiles provided local context and facilitate discussions by prompting relevant factors.

The following profiles utilise current publicly available datasets, including the Scottish Census, National Records for Scotland and Scottish Index of Multiple Deprivation, as well as economic datasets such as the Rural Business Survey and Labour Force Survey. In-text referenced are provided for all datasets, including the author and date. Please note that wherever data was not available for the specific location, data for the wider local authority was included instead.

The selection of factors to consider were informed by Equality Impact Assessments, Socioeconomic Impact Assessments and the Scottish Index for Multiple Deprivation (SIMD[10]) itself which was established to compare the levels of deprivation across Scotland's data zones[11].

Key findings from these profiles were used in the focus group introductions to provide tailored demographic and deprivation context to support the deliberation of local impacts relating to OWF. A high-level summary is provided in the main body of this report.

Stonehaven, Aberdeenshire

Stonehaven is a town within the local authority of Aberdeenshire located on Scotland's northeast coast. According to the 2022 rounded estimates, Aberdeenshire has a population of 263,900 (Scotland's Census, 2023).

Age

As reported in the 2022 Census, the largest proportion of Aberdeenshire's population were 45–64 years old (29.2), closely followed by 21.1% of the population aged 65 and over. Young people, aged 15-24, compose the smallest proportion of the population (9.4%).

[10] SIMD is a measure of relative deprivation across data zones. Scotland is divided into 6,976 data zones. SIMD ranks these data zones from 1 (most deprived) to 6,976 (least deprived) in terms of overall deprivation and deprivation across seven different domains, including income, employment, crime and access to services. An area can be identified as 'deprived' if people have fewer resources, opportunities or low income for example. SIMD users often focus on the data zones below a certain rank, for example, the 5%, 10%, 15% or 20% most deprived data zones in Scotland. Further information on SIMD can be found at: Scottish Index of Multiple Deprivation 2020 - gov.scot (www.gov.scot)

[11] Data zones are composed of Census Output Areas and are large enough that statistics can be presented accurately without fear of disclosure, but small enough that they can be used to represent communities.

The local authority is experiencing an ageing population, alike Scotland as a whole, with a 4.9% increase in people aged 65 and over between 2011 and 2022 Census.

Gender

The 2022 Census reveals a gender split of 51.2% females and 48.8% males.

Disability

The latest available data on disability is the 2011 Census (Scotland's Census, 2011). This dataset reveals that over 15% of Aberdeenshire's population have a disability or long-term health problem. A larger percentage of these (9.2%) have a disability which limits their day-to-day activities a little, while 6.3% have a disability which limits their day-to-day activities a lot. This sits below the national average of 19.7%, composed of 9.6% whose day-to-day activities are limited a lot and 10.1% limited a little.

Deprivation

Aberdeenshire is relatively affluent, as only 2.6% of data zones sit within the 20% most deprived areas in Scotland, representing only 0.6% of the national share (Aberdeenshire Council, 2020). On the other hand, 29% of data zones are the least deprived 20% in Scotland and Aberdeenshire's highest ranking data zone, indicating low levels of deprivation, is found in Stonehaven (6,959 out of 6,976).

In terms of deprivation domains, Aberdeenshire has relatively low levels of income, employment and housing deprivation, while access deprivation displays significantly higher levels of deprivation compared to the other domains.

In terms of access to services, over 40% of Aberdeenshire's data zones sit within the 20% most deprived in Scotland. Further, 15.3% are considered to sit within the 5% most deprived areas in terms of access to key services. The poor performance in this domain, indicating a lack of access to services across Aberdeenshire, could be expected due to the predominant rurality of this local authority.

Contrastingly, the SIMD 2020 shows low levels of health deprivation in Aberdeenshire with only 1 data zone falls into the 20% most deprived areas in Scotland. This indicates that the population of Aberdeenshire are relatively healthy compared to other data zones.

Notably, Stonehaven is captured within the 24.7% of data zones falling within the 20% most crime deprived areas, indicating high levels of crime. Further, 2% of data zones sit within the 5% most crime deprived areas and Peterhead Harbour is scored as the 30th most deprived area in terms of crime across Scotland.

Employment

In Aberdeenshire, 2.4% of the economically active population are unemployed, which sits below the national average of 3.5% (ONS, 2023a). There are higher-than-national average proportions of retired (28.7%

compared to 14.2%) and caring or family/home (19.6% compared to 16.8%) contributing to economic inactivity.

Labour market statistics further reveal that the median gross weekly pay of employees sits above the national average. In Aberdeenshire, gross weekly pay is £709.40 compared to £640.30 in Scotland.

In terms of employment by industry, manufacturing sits almost 6% above the national average at 13%. Similarly, construction contributes 9% of employment compared to 6.1% nationally.

Education

In Aberdeenshire, 2019 estimates reveal that the percentage of working age adults with low or no educational qualifications sits below the national average at 6.7% compared to 11.64%.

Further, the percentage of school leavers entering positive destinations[12] in 2021/22 was high, at 96.65%. The percentage of school leavers living in the most deprived 20% with one or more qualifications at level 6 on the Scottish Credit and Qualification Framework (SCQF[13]) was 1% higher at 97.65%.

Health

The low levels of health deprivation in Aberdeenshire are further evidence through the above average healthy life expectancy[14] of males (67.2 years) and females (67.4 years) as reported in 2019-21 (ScotPHO, 2023).

The percentage of people aged 65+ who are receiving home care, hospice care or are a long-term resident in hospital is slightly higher than the national average (36.97% compared to 35.31% respectively). In Aberdeenshire, this percentage has fluctuated over time and continually increased since 2018/19.

Active travel levels to school are reported below the national average for 2022/23, at 47.3% compared to 50.18%. Similarly, active travel to work sits 1.2% below the average for Scotland at 13.4%.

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[12] Positive destinations are defined by Scottish Government as work, training or further study within three months of leaving school last year.

[13] The SCQF is the national qualification framework for Scotland. It has 12 levels which indicate the level of difficulty of a particular qualification and the number of credit points indicates the length of time taken to complete. The level of difficulty increases from Level 1 (National 1 Scottish Qualification Authority) to Level 12 (Professional Development Award, Doctoral Degree and Professional Apprenticeships). Further information is available at: About the Framework | Scottish Credit and Qualifications Framework (scqf.org.uk)

[14] Healthy life expectancy is the number of years a person can expect to live in good health, which differs from life expectancy estimates which are an average number of years a person can expect to live.

Dundee City

Dundee City is a local authority located on the east coast and is Scotland's fourth largest city with a population of over 148,100 according to the 2022 Census rounded population estimates (Scotland's Census, 2023).

Age

The 2022 Census reports the majority of the population as 45-64 years old (24.3%), followed by those ages 65 and over (18%).

Dundee City has a relatively stationary population, although still showing signs of ageing in line with the other local authorities. Those aged 65 and over increased by 1.3% between the two Census', while the proportion of 0–24-year-olds decreased (by 2.2%).

Gender

According to the 2022 Census, Dundee City has a split of 51.4% females to 48.7% males.

Disability

In 2011, 20.9% of the population were disabled or had a long-term health problem which sits just above the national average of 19.7%. Of these, half (10.5%) had a disability which limited their day-to-day activities a lot and half (10.4%) had a disability which limited their day-to-day activities a little (Scotland's Census, 2011).

Deprivation

Dundee City has the 5th highest levels of deprivation across all local authorities in Scotland, accounting for 37.2% of the national share of the 20% most deprived data zones in Scotland (Scottish Government, 2020d).

According to the SIMD 2020, 36.6% of Dundee City's population live within the 20% most deprived areas in Scotland, this includes 43.8% of children in the local authority (Dundee City Council, 2020a). Further, 11.2% of Dundee City's population fall within the 5% most deprived areas in Scotland.

In terms of deprivation domains, education and housing deprivation are highest across Dundee City (Dundee City Council, 2020c). Over 47% of children (0-15 years) live in data zones within the 20% most education deprived, which is an increase from 45% in 2016, and 45.5% of the population reside in data zones considered 20% most deprived in the housing domain.

The percentage of the population living within data zones ranked within the 20% most deprived are similar for health (36.6%), employment (36.4%), income (36.6%) and crime (33.1%) deprivation.

Employment

In Dundee City, 5.6% of the economically active population are unemployed, which is above the national average of 3.5% (ONS, 2023b). In terms of economic inactivity, the percentage of students in Dundee (33.8%) is higher than the national average (22.6%).

Labour market statistics further display trends of underemployment, low income and workless households. In 2020, 11% of Dundee City was underemployed compared to 8.1% nation-wide (Dundee City Council, 2023); in 2022, median gross weekly pay across full-time workers in Dundee was £584.20 compared to £640.30 in Scotland; and in 2021, 21.9% of households in Dundee City were workless compared to 18.6% across the country (ONS, 2023b).

In regard to child poverty, 2021/22 estimates report that 27.1% of children in Dundee City were living in poverty after housing costs, sitting 2.6% above the national average (Dundee City Council, 2023). Further, 24.5% of children (aged 0-15) were living in relative low-income families in 2021/22, 49.6% of which were lone parent families.

Education

The latest available estimates from 2019 reveal the percentage of working age adults with low or no educational qualifications is 10.1%, sitting below the national average of 11.64% (ScotPHO, 2023).

The percentage of school leavers living within the most deprived 20% with one or more qualifications at SCQF level 6 is 93.26%, according to 2021/22 estimates. Although this is slightly lower than the national average of 96.41%.

Health

In 2019-21, the health life expectancy for both males and females in Dundee City sit below the national average (ScotPHO, 2023). For women the difference is marginal, with a local life expectancy of 59.5 years compared to 61.1 years in Scotland, while men reported a larger difference of 55.9 years compared to 60.4 years.

The percentage of people aged 65+ with high levels of home, hospice or hospital care in 2021/22 was 35.61% in Dundee City, almost identical to the national average. This has experienced a decrease from 40.34% in 2020/21.

Active travel to school in Dundee City represents roughly 50% of travel, similar to Scotland as a whole. Active travel to work sits 5.6% above the national average at 20.2%, however composes a smaller percentage of travel.

Buckie, Moray

Buckie is a town within the Moray local authority located on the northeastern coastline. The 2022 Census rounded population estimated report a population of 93,400 for Moray (Scotland's Census, 2023).

Age

The largest proportion of Moray's population sit within the 45-64 age group (28.9%), while young people aged 15-24 represent the smallest proportion (10.1%), according to the 2022 Census.

Alike wider Scotland, Moray displays an ageing population. Between 2011 and 2022, those aged 65 and over increased by 4.4% from 18.5% to 22.9%.

Gender

As reported in the 2022 Census, Moray has a higher proportion of females (50.4%) to males (49.3%).

Disability

As reported in the 2011 Census, the percentage of disabled people whose day-to-day activities are limited a little (10.2%) sits above the percentage of those whose day-to-day activities are limited a lot (7.6%) (Scotland's Census, 2011). This percentage of people in Dundee who have a long-term health problem or disability (17.8%) sits below the national average of 19.7%.

Deprivation

Moray is one of six local authorities to experience an increased share of the 20% most deprived data zones in Scotland between the SIMD 2016 and 2020. Despite this increase, only 3% of Moray's data zones are considered the 20% most deprived in Scotland (Scottish Government, 2020).

SIMD 2020 data reveals that Moray has particularly low levels of income, employment and housing deprivation (Scottish Government, 2020e). Moray represents the fourth lowest levels of deprivation in terms of income and employment, with 2.38% and 3.17% of data zones falling within the 20% most deprived in Scotland. Housing deprivation records lower levels of deprivation with 1.59% of data zones within the 20% most deprived.

Contrastingly, access deprivation records the largest share of data zones (30.95%) within the 20% most deprived in Scotland across all domains in Moray.

Employment

In Moray, 3.2% of the population are unemployed which is marginally lower than the national average (3.5%) (ONS, 2023c). The largest percentage are

economically inactive residents are long-term sick (29.1%) followed by students (27.7%).

Labour market statistics further reveal trends of low income and part-time work. In Moray, the median gross weekly pay for full time workers in Moray is £598.80 compared to £640.30 nationally. Full time jobs represent the majority of employment in Moray (62.9%), while levels of part time work sit higher than the national average, at 40% compared to 33.6% respectively.

Further, in 2022 Moray had significantly higher levels of employment in manufacturing (16.7%) than in Scotland (6.9%). On the other hand, financial and insurance activities (0.3%), administrative and support service activities (4.2%) and professional, scientific and technical activities (4.2%) all sit below the country-wide levels (3.3%, 8.1% and 7.4% respectively).

Education

In 2019, 11.6% of working age adults had low or no educational qualifications. This is a marginal increase from 2018 (11.2%) (ScotPHO, 2023).

In 2021/22, 96.2% of school leavers were in positive destinations at a 9-month follow-up. In the same year, 97.3% of school leavers living in the most deprived 20% had one or more qualifications at SCQF level 6. Both of these percentages sit alongside the national average.

Health

In Moray, the healthy life expectancy of both females (62.7 years) and males (62.4 years) sit above the national average for 2019-2 (ScotPHO, 2023).

The population aged over 65+ who receive high levels of care at home, in a hospice or in hospital has fluctuated since 2018/19, from a low of 33.6% in 2019/20 to a high of 40.8% in 2020/21. The latest figures in 2021/22 sits slightly above the national average, at 36.9% compared to 35.3% respectively.

Active travel to school has represented roughly 50% of travel since 2010/11, sitting alongside the national average, while active travel to work composed only 12.9% of travel modes in 2018/19 after a steep reduction from 21.5% in 2016/17.

Lewis, Na h-Eileanan Siar

The Isle of Lewis is located off the northwest coast of Scotland within the Na h-Eileanan Siar local authority. As reported in the 2022 Census, Na h-Eileanan Siar has a rounded population of 26,200 and experienced the largest decrease (-5.5%) in population across all 17 local authorities since 2011 (Scotland's Census, 2023).

Age

According to the 2022 Census, the largest proportion of Na h-Eileanan Siar's population sit within the 45-64 age category (30.5%), while the population of 15–24-year-olds is the smallest (8%).

Na h-Eileanan Siar has an ageing population. Between 2011-2022, the proportion of people aged 65 and over increased by 4.7%, while those aged 0-24 reduced by 3.6%.

Gender

Na h-Eileanan Siar has a larger percentage of females, at 50.4%, than males, 49.6%, according to the 2022 Census.

Disability

The 2011 Census reveals that 9.8% of the population have a long-term health problem or disability which limits their day-to-day activities lot compared to a higher 10.8% which are limited a little (Scotland's Census, 2011). This composes over 20% of the population, sitting slightly above the national average of 19.7%.

Deprivation

Na h-Eileanan Siar has no areas among the 20% most deprived in Scotland, however, groups of the population may still be experiencing deprivation (Scottish Government, 2020e).

A breakdown of deprivation domains reveals that Na h-Eileanan Siar is one of few local authorities that records a 0% share within the 20% most deprived areas in terms of income, employment, education, health and housing.

Contrastingly, Na h-Eileanan Siar has the largest share of data zones (80.56%) within the 20% most deprived areas in terms of access across all local authorities.

Employment

In Na h-Eileanan Siar, 2.5% of the economically active population are unemployed, which falls 1% below the national average of 3.5% (ONS,

2023d). A breakdown of the economically inactive population is not available across the Scottish Islands.

Labour market statistics further reveal trends of low income and part-time work. In Na h-Eileanan Siar, the median gross weekly pay of full-time workers is £560,90 compared to a higher £640,30 nationally. Full-time work composes the majority of employment in Na h-Eileanan Siar (63.6%), while part time employment sits above the national average at 40.9% compared to 33.6% respectively.

Education

The latest education figures reveal above-average educational performance within Na h-Eileanan Siar (ScotPHO, 2023).

In 2017, only 8.7% of working age adults had low or no educational qualifications which falls below the national average of 10.8% for that year. Figures from 2016/17 further reveal that 98.5% of school leavers living in the most deprived 20% have one or more qualifications at SCQF level 6 compared to 96.3% nationally. Further, 98.4% of school leavers entered positive destinations compared to 95.1% nationally.

Health

In 2019-21, the healthy life expectancy in Na h-Eileanan Siar sits above the national average for both sexes, with men (67.5 years) reported to live longer than women (64 years) (ScotPHO, 2023).

People aged 65 and over in 2021/22 receiving high levels of care, either at home, in a hospice or in hospital, was recorded at 13.6%. This sits significantly below the national levels of 35.3%.

Active travel to school and work share similar percentages of travel, at 15.5% and 14% respectively. Active travel to school sits significantly below national levels of 50%.

Orkney Island

Orkney Island is a group of over 70 islands, 20 of which are inhabited, situated roughly 20 miles off the coast of Scotland. The 2020 Census reports a rounded population of 22,000 in the Orkney Islands (Scotland's Census, 2023).

Age

The 2022 Censuses reveals that 30% of Orkney's population are between the ages of 45 and 64, while young people represent only 8.6% of the population.

Population changes between 2011 and 2021 indicate an ageing population. Those aged 65 and over in Orkney experienced a 5.2% increase, accompanied by a 3.3% reduction in people aged 0-24.

Gender

In the Orkney Islands, females represent 50.9% of the population while males represent a lower 49.1%.

Disability

The latest available data on disability reveals that 18.9% of Orkney's population have a long-term health problem or disability, sitting below the national average of 19.7%. Of these, 7.9% have a disability which limits their day-to-day activities a lot, while 11% have a disability which limits their day-to-day activities little (Scotland's Census, 2011).

Deprivation

Orkney Islands displays similar deprivation trends as Na h-Eileanan Siar. Orkney has no areas among the 20% most deprived in Scotland, however, groups of the population may still be experiencing deprivation (Scottish Government, 2020e).

A breakdown of deprivation domains reveals that Orkney Islands is one of few local authorities that records a 0% share within the 20% most deprived areas in terms of income, employment and health.

Contrastingly, Orkney has the third largest share of data zones (58.62%) within the 20% most deprived areas in terms of access across all local authorities.

Employment

In Orkney, 2% of the population are unemployed which sits below the national average of 3.5% (ONS, 2023e). A breakdown of the economically inactive population is not available across the Scottish Islands.

Labour market statistics further reveal higher-than-average earnings in Orkney Islands. The median gross weekly pay for full-time workers is £660.50 in Orkney, compared to £640.30 across Scotland. The job density[15] also sits above the national average at 1.03 compared to 0.81 respectively.

In terms of child poverty, 2021/22 estimates reveal that 20.1% of children across the Orkney Islands are living in poverty after housing costs (End Child poverty, 2023). This sits below the national average of 24.1%, however is an increase in poverty from 18.1% in 2020/21.

Education

The latest educational figures for Orkney Islands report the percentage of working age adults with low or no educational qualifications in 2010 is 10.8%, sitting below the national average for that year of 14.8% (ScotPHO, 2023).

School leavers entering positive destinations in 2021/22 (94.8%) and school leavers living in the most deprived 20% with one or more qualifications at SCQF level 6 (96.2%) sit alongside the average for Scotland.

Health

The healthy life expectancy of males (71.7 years) and females (76.4 years) sit significantly above the national average for 2019-21 and reveal that women are expected to live longer (ScotPHO, 2023).

The percentage of over 65's receiving high levels of care has fluctuated over time to 33.3% in 2021/22, sitting slightly below the national average of 35.3%.

Active travel to school represents 33.7% of travel and sits below the national average (50%), while active travel to work sits above the national average (14.6%) and composes 25% of travel.

[15] Job density is the level of jobs per resident aged 16-64. For example, a job density of 1.0 would mean that there is one job for every resident aged 16-64.

Appendix C Target recruitment quota

Gender (2011)	**Percentage (%)**
Male	48%
Female	52%
Age Bands (2011, of population 16 years or older)	**Percentage (%)**
Under 16-34	30%
35-64	50%
65 and over	20%
Occupational status (2023)	**Percentage (%)**
In employment	74%
Unemployed	4%
Other (e.g., student, retired, looking after family/home, sick)	22%
Qualifications (2021)	**Percentage (%)**
Degree or higher education (SCQF level 7 and above)	47%
Other qualifications (SCQF level 5 – 6)	42%
Low or no qualifications (SCQF level 4 or below)	11%

Appendix D Pre-deliberation Survey

Focus Group Survey: Lewis, Na h-Eileanan Siar

As part of AECOM's research exploring the perceived, experienced and anticipated socioeconomic impacts of offshore wind farm developments, please take 10 minutes to complete the below survey to demonstrate your level of awareness of offshore wind farms in your local area and Scotland as a whole.

Please return to your teams meeting following completion.

* Required

1. First and last name *

2. Are you aware of any offshore wind farms located across Scotland? *

- ◯ Yes
- ◯ No

3. Are you aware of any future offshore wind farm developments planned near Lewis? *

- ◯ Yes
- ◯ No

4. On a scale of 1 (not at all confident) to 5 (completely confident), how confident are you in your level of knowledge and understanding of offshore wind farms? *

1	2	3	4	5

5. On a scale of 1 (strongly negative) to 5 (strongly positive), what impact do you think that offshore wind farms have on the following: *

	Strongly negative	Negative	Netural	Positive	Strongly positive	Don't know
Local economy	○	○	○	○	○	○
Employment	○	○	○	○	○	○
Cost of living	○	○	○	○	○	○
Local housing market	○	○	○	○	○	○
Community funding	○	○	○	○	○	○
Local services	○	○	○	○	○	○
Tourism and recreation	○	○	○	○	○	○
Local culture	○	○	○	○	○	○
Human health	○	○	○	○	○	○
Infrastructure	○	○	○	○	○	○

6. On a scale of 1 (strongly disapprove) to 5 (strongly approve), to what extent do you approve or disapprove of offshore wind farms in your local area? *

1	2	3	4	5

7. Please provide a brief explanation for your previous answer. *

8. On a scale of 1 (strongly disapprove) to 5 (strongly approve), to what extent do you approve or disapprove of offshore wind farms in Scotland? *

1	2	3	4	5

9. Please provide a brief explanation for your previous answer. *

10. What measures could be introduced to address any concerns you have regarding offshore wind farms? *

Appendix E Information pack example

3. Evidence by theme

The tables below summarise current evidence on the social and economic impacts of offshore wind farms in Scotland. Information is distinguished based on whether the impact is positive (+) negative (—) or neutral (±) All Information is further divided by whether an impact is predicted/ potential based on modelling or an impact assessment or evidenced by research and comparable case studies. All information presented below is based on the references provided in the annex of this information pack.

Local economy and employment impacts

Potential / predicted impacts	
+	As a result of construction and installation activities between 2029 and 2033, it is expected that in the East €490 million - E610 million in annual GVA would be generated from offshore wind energy and €410 million - E510 million in the North East The direct positive cost Impacts associated with INTOG are also present in the North East and East, ranging from €180 million - El ,700 million total CVA.
+	Between 11,000 to 14,000 full-time equivalent jobs (FTE) are expected as a direct result of the offshore Wind energy (OWE) (in any one year over the appraisal timeframe). The largest regional employment Impacts associated with OWE are anticipated In the East. Employment impacts directly resulting from INTOG are between 1,800 to 2,300 FTE. The North East is estimated to have the largest employment impacts associated with INTOG.
-	Potentially negative effects of renewable energy development on aquaculture, fisheries, oil and gas, shipping and tourism. In particular, the negative in-combination impacts on fisheries may Include changes to the cost-revenue profile, conflict with other vessel types, reduced efficiency of operation, increasing carbon emissions and seabed impacts.
-	OWE and INTOG may catalyse job losses across local Industries if their operations are compromised. In particular, a reduction in fish landing would result in a loss of FTE within the fishing industry. It is estimated that 57-81 FTE jobs may be lost through the direct and indirect impacts of OWE, while 6.7-9.6 FTE jobs could be lost as a direct and indirect result of INTOG. This loss of employment could have knock-on effects for associated industries, such as the catching sector and those servicing the industry, such as transportation of landings and logistics. Thereby, those employed in the fishing industry and related sectors not taking up new and higher paid employment opportunities from OWE developments could experience wealth inequality as a result of unemployment.

Evidence from comparable research/ case studies	
±	Studies in Scotland, Wales and Ireland evidence that OWF directly and indirecty impact employment through locally manufactured resources and local construction, operation and maintenance contractors. However, Wider studies conclude that foreign investment tends to outweigh local opportunities during the development phase. For example, the turbine itself composes the largest capital cost and is typically imported, in addition to on-site installation personnel being employed from the turbine manufacturer.
±	The short-term nature of construction related employment is perceived to disadvantage small coastal towns through sudden changes in the job market creating a boom and bust' scenario. While the delivery of training would enable local residents to upskill and become long-term employees With beneficial transferable skills that could improve their employability in the future. For example, the Aberdeen Offshore Wind Farm (OWF) case study revealed that 50% of the construction workers were Dutch which reflected the nationality of the construction contractor and the main benefits of the offshore construction stage were leaked to individuals outside Aberdeen. There is currently no statistical evidence of the long-term employment benefits of the offshore wind industry.
±	A postal survey reveals that neutral or positive attitudes towards offshore renewable energy developments are held by the majority of fishers (81%). The diversification of rural island economies, employment, wealth growth and further socioeconomic benefits were recognised as potential impacts of offshore energy. While further interviews With fishers anticipated a loss of earnings and time through the deployment of marine renewable energy devices in the most productive fishing grounds. The displacement of fishing sites could increase travel distances, spend on fuel and competition. The proximity and awareness of nearby developments is identified as an influence on attitudes. For example, fishers operating from island ports, who are less exposed to current offshore developments, are more likely to have positive attitudes than those living on the mainland, who are likely to live in close proximity to developments. Despite the negative attitudes, the majority of fishers recognise there is a need for offshore renewable energy developments.

Distributional impacts

Potential / predicted impacts	
+	Higher incomes and increased local spending due to new highly paid jobs could lead to larger disposable income for both local and relocated employees through reducing the net income spent on housing, food and fuel. This employment is also likely to reduce relative poverty after housing costs. A knock-on effect of the rise in disposable income is increased spending on local in-land businesses and improved community sustainability.
-	The offshore wind industry could generate a negative cost of living impact as a result of increased income and in-migration. The uptake of high-paid green jobs could Increase inflationary pressures within local communities and drive up the cost of living. While this impact would be felt across the whole population, disproportionate negative outcomes are likely amongst low-income households and those who do not take up better paid employment consequently, wealth Inequality is anticipated to increase Within coastal communities impacted by new offshore Wind developments.
-	The housing market could consequently face Increasing demand as a result of in-migration relating to OWE employment opportunities. While better paid job creation is a positive social Impact, the increased population within coastal towns is expected to drive up competition and house prices within local markets. Thereby, residents not taking up new or higher paid employment may be priced out of the local housing market and be forced to rely on below standard housing.
Evidence from comparable research/ case studies	
±	Empirical studies conclude no significant evidence of house price depreciation as a result of visual OWF's from the property or the nearest beach.
+	Distributional impacts of OWE developments can occur as a result of energy developers allocating funding to the local community in closest proximity to the scheme, known as Community Benefit Funds'. The level of funding is typically defined by E per megawatt of installed capacity per annum and are spent in response to community needs, for example on sports equipment, social activity, educational opportunities and sustainable energy.
-	However, the scale at which Community Benefits Funds are managed is an important consideration in enabling positive impacts to be shared across the local community. The cost of managing this community funding in small communities could outweigh the funding benefits. Additionally, it is challenging to objectively identify the boundaries that define the locality' of a development and who is eligible to benefit from any benefits provision.

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