Appendix 12.1: Socio-economics, Tourism and Recreation Onshore Technical Report

(Document ID: MMH-LUC-A004-ENV-0002-042)

BiGGAR Economics

Muir Mhòr Offshore Wind Farm

Socio-Economics, Tourism and Recreation Onshore Technical Report

A report to Fred Olsen Seawind (FOS) and Vattenfall
November 2024

Contents

1.	**Introduction**	**1**
2.	**Baseline Methodology**	**2**
3.	**Economic Impact Methodology**	**5**
4.	**References**	**11**

Tables

Table 2.1 Summary of key data sources used. 2
Table 3.1 SCDS Commitment Scenario (£m) 8

Figures

Figure 3.1 Economic Impact Methodology and Data Sources 6
Figure 3.2 Levels of Economic Activity and Impact 9
Figure 3.3 Turnover per GVA 10
Figure 3.4 Indirect GVA 10
Figure 3.5 Induced GVA 10

Acronyms

Term	Definition
EIAR	Environmental Impact Assessment Report
European Union	EU
FTE	Full-Time Equivalent
GVA	Gross Value Added
GW	Gigawatt
HM	His Majesty's
Kantar TNS	Kantar Taylor Nelson Sofres
km	Kilometres
MAU	Marine Analytical Unit
MW	Megawatt
NPV	Net Present Value
O&M	Operation and Maintenance
ONS	Office of National Statistics
OWIC	Offshore Wind Industry Council
rUK	Rest of UK
SCDS	Supply Chain Development Statement
UK	United Kingdom

1. Introduction

BiGGAR Economics has been commissioned to undertake an economic impact assessment of the Proposed Development.

1.1 Background

The Muir Mhòr Offshore Wind Farm (hereafter the Project) comprises an array area located in the North Sea approximately 63 kilometres (km) east of Peterhead, and export cable corridor (ECC) with landfall near Peterhead. Onshore transmission infrastructure will facilitate connection of the Project to the National Grid, which is hereafter referred to as the Proposed Development.

BiGGAR Economics has undertaken an Environmental Impact Assessment (EIA) for the Proposed Development, which considers the socio-economic, tourism and recreation impacts.

1.2 Purpose of this report

The purpose of this report is to:

- Support Volume 2: Chapter 12: Socio-Economics, Tourism and Recreation of the Onshore Environmental Impact Assessment Report (EIAR);
- Provide more detail on the methodology used to develop the baseline; and
- Provide more detail on the methodology used to quantify the economic impacts associated with the Proposed Development.

The analysis presented in this report represents the findings based on the data available in September 2024.

A comprehensive model has been developed to analyse these impacts.

2. Baseline Methodology

This section outlines the methodology for establishing the baseline to inform the assessment of effects on employment and the economy in defined study areas.

2.1 Desktop Study

The methodology for establishing the baseline involved a broad desktop study. This study was aimed at evaluating and assessing the key datasets and statistics related to socio-economics features and supply chain capabilities in the UK and Scotland. It focused on various key statistics, including general population demographics, age group distribution and overall employment levels.

The data sources specific to the socio-economics baseline related to the Proposed Development are shown in Table 2.1.

Table 2.1 Summary of key data sources used.

Data Source	Summary
Mid-2022 Population Estimates Scotland (National Records of Scotland, 2024)	Population estimates, broken down by age.
2018-based Principal Population Projections (National Records of Scotland, 2020)	Population projections for Scotland and each of its 32 local authorities, broken down by age.
2020-based Principal Population Projections (National Records of Scotland, 2022)	Population projections for the United Kingdom (UK) as a whole, broken down by age.
Annual Survey of Hours and Earnings 2023 (ONS, 2023)	Provides average and median residential and workplace earning.
Business Register and Employment Survey 2022 (ONS, 2023)	Provides a breakdown of employment by sector.

Data Source	Summary
Annual Population Survey 2022 (ONS, 2023)	Provides statistics on characteristics of populations, including economic activity rate and unemployment rate.
The Offshore Wind Sector Deal (UK Government, 2020)	Sets out the economic opportunities associated with offshore wind, including UK Government targets on the share of UK content.
National Performance Framework (Scottish Government, 2018)	Sets out a framework for what a successful country would look like, providing a range of measures to assess a proposed project against.
National Strategy for Economic Transformation (Scottish Government, 2022)	Sets out the priorities for the Scottish economy, as well as how to achieve a wellbeing economy.
Offshore Wind Policy Statement (Scottish Government, 2020)	Sets out the Scottish Government's ambitions for the future of offshore wind in Scotland.
GB Day Visitor 2019 (Kantar Taylor Nelson Sofres (TNS), 2020)	Annual publication of domestic day visits by number and value for 2022, Earlier data for local authorities will be from 2019 as the latest year not affected by Covid-19.
GB Tourism Survey 2022 (Kantar TNS, 2020)	Annual publication of domestic overnight tourism visits and nights by number, value and purpose for 2022, Earlier data for local authorities will be from 2019 as the latest year not affected by Covid-19.
International Passenger Survey (ONS, 2023)	Annual publication of international overnight tourism visits and nights by number, value and purpose for 2022.
Annual Growth Sector Statistics (Scottish Government, 2023)	Provides economic statistics, such as employment and Gross Value Added (GVA), on growth sectors identified by the Scottish Government, including sustainable tourism.

2.2 Study Areas for Economic Impact Assessment

The socio-economic study areas for the assessment of effects on employment and economy will be defined in line with the guidance on the identification of 'local areas' for offshore developments published by the Scottish Government (Scottish Government, 2022).

This guidance identified six principles for identifying local study areas for offshore development (though this also applies to onshore development):

- Principle 1 (Dual Geographies): The local area for the supply chain and investment impacts should be separate from the local area(s) for wider socio-economic impacts, including tourism and recreation.
- Principle 2 (Appropriate Impacts): The appropriate impacts to be considered for assessments should be identified before defining the local areas.
- Principle 3 (Epicentres): The local areas should include all the epicentres of the appropriate impacts.
- Principle 4 (Accountability): The local areas used in the assessment should comprise pre-existing economic or political geographies (community councils, local authorities, development agencies) to enhance accountability.
- Principle 5 (Understandable): The local areas should be defined in such a way that they are understandable to the communities they describe.
- Principle 6 (Connected Geography): The local area for the supply chain and investment impacts should consist of connected (including coastal) pre-existing economic or political geographies.

The main local epicentres of impact for the Proposed Development are expected to be where the main infrastructure is located (Aberdeenshire). However, at this stage these ports are not known, and therefore the following study areas have been considered:

- Scotland; and
- the UK.

3. Economic Impact Methodology

This section outlines the methodology for assessing the economic impacts of the Proposed Development.

3.1 Approach to Impacts

3.1.1 Key Steps in Assessing the Contribution of the Proposed Development

Before the analysis of economic impacts is undertaken, it is necessary to select the study areas for inclusion in the assessment of the Proposed Development, as set out in Section 2.2. This process is based on separate guidance that BiGGAR Economics developed on behalf of the Scottish Government (Scottish Government, 2022).

Having selected the study areas for which GVA and employment impacts are considered, it is then possible to gather relevant information and estimate economic impacts. The estimation of the economic benefits from the Proposed Development is based on a purposedly-built tool developed by BiGGAR Economics. As set out in Figure 3.1, the analysis is based on an Input-Output methodology built upon the following steps:

- Estimation of the total investment associated with the project (construction and development and operations and maintenance);
- Estimation of contract value by type;
- Estimation of contract content by geographical area;
- Conversion of contracts into the direct employment supported by the project;
- Estimation of direct GVA based on direct employment supported;
- Estimation of supply chain (indirect) impacts on GVA and employment; and
- Estimation of induced impacts on GVA and employment.

Figure 3.1 Economic Impact Methodology and Data Sources

Source: BiGGAR Economics Approach to Offshore Wind

3.1.2 Information Requirements and Data Sources

The assessment requires knowledge of a series of parameters including:

- Costs by project element;
- Estimates of content by study area; and
- Timescales of activity.

Key sources of information, include:

- Publicly available information as presented in the Muir Mhòr Onshore Scoping Reports (Muir Mhòr Offshore Wind Farm, 2023);
- Commercial data from the Developer, including the Supply Chain Development Statement (SCDS) (Muir Mhòr Offshore Wind Farm, 2023);
- Scottish Annual Business Statistics for data on GVA, turnover and employment across Scotland (Scottish Government, 2022);
- UK Annual Business Survey for data on GVA, turnover and employment across the UK (ONS, 2022) ;
- Scottish Government Input-Output GVA and employment multipliers for Type 1 impacts (supply chain spending) and Type 2 impacts (supply chain spending and staff spending) (Scottish Government, 2022); and
- UK Input-Output GVA and employment multipliers for Type 1 and Type 2 impacts (ONS, 2023).

These data sources are complemented by BiGGAR Economics experience working with developers in the offshore wind sector and by the use of sectoral reports.

3.1.3 Supply Chain Development Statement

The starting point for assessing the economic impact assessment was the expenditure that is expected to be associated with combined onshore and offshore elements of the Project. The Developer's SCDS (Muir Mhòr Offshore Wind Farm, 2023) provides estimates of the share of expenditure in Scotland, the UK, the EU and elsewhere across two scenarios (commitment and ambition) associated with four categories of expenditure:

- Development;
- Manufacturing and fabrication;
- Installation; and
- Maintenance.

In the commitment scenario presented in the SCDS, it was expected that the total expenditure on onshore and offshore infrastructure during the development and construction phase of the Project would be £2.0 billion, including £239.3 million in Scotland and £258.5 million in the rest of the UK (rUK).

This includes:

- £141.2 million on development, such as studies, surveys, analysis and resources required to obtain planning consent;
- £1.6 billion on manufacturing and fabrication, including wind turbine engines, blades and towers, floating foundations, mooring and anchoring, inter-array and interconnector cables, onshore and offshore substation fabrication and the operation and maintenance base construction; and
- £214.3 million on foundation and mooring installation, onshore wind turbine and foundation assembly works, onshore substation construction and installation and export cable route works.

In addition, there is expected to be operation and maintenance spend of £92.5 million per year, including £33.6 million per year in Scotland. This is expected to include operating and maintaining the wind turbines and infrastructure associated with the Project, inspections, rents and transmission charges.

Table 3.1 SCDS Commitment Scenario (£m)

	Scotland	rUK	EU	Rest of World	Total
Development	61.7	34.7	44.7	-	141.2
Manufacturing and fabrication	165.3	211.5	472.3	799.6	1,648.7
Installation	12.3	12.3	169.1	20.7	214.3
Development and construction	**239.3**	**258.5**	**686.1**	**820.3**	**2,004.2**
Annual operation and maintenance	33.6	34.5	24.4	-	92.5

Each of the categories of spend was then split into sub-categories based on BiGGAR Economics' own offshore wind economic model, which incorporates a detailed breakdown of cost categories, based on industry data, including BVG Associates Guide to a Floating Offshore Wind Farm (BVG Associates, 2024).

Each of these categories was assigned either wholly or partly to offshore or onshore. On this basis, it was assumed that the spending associated with offshore infrastructure would be £1.9 billion, with £0.1 billion spent on onshore infrastructure (i.e. the Proposed Development).

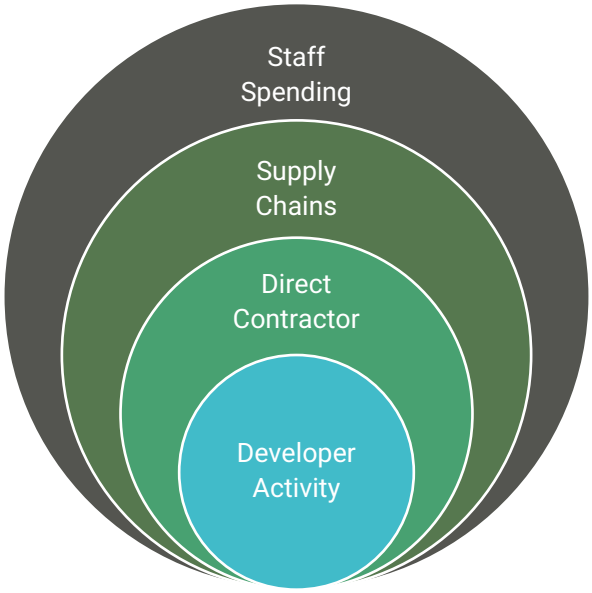
3.1.4 Dimensions of Impact and Key Terms

In line with industry best practice, for the assessment of GVA and employment impacts, the analysis focuses on:

- **Direct economic impacts**: economic impact associated with the activity of primary contractors involved in the development, construction and operations and maintenance of the Proposed Development; and
- **Indirect economic impacts**: economic impact associated with the spending taking place across the supply chain of those businesses involved in the development, construction and operations and maintenance of the Proposed Development.

The assessment also refers to the additional benefits associated with the spending in the economy by those employed to carry out works associated with the Proposed Development (**induced economic impacts**).

Figure 3.2 Levels of Economic Activity and Impact



Economic impacts are expressed in terms of:

- **GVA:** a measure of economic activity expressed as the difference between an organisation's turnover and its non-staff operational expenditure;
- **Years of Employment:** a measure of short-term employment used in the context of jobs associated with construction and development activity. As an example, a job lasting for 18 months is equivalent to 1.5 years of employment; and
- **Jobs**: a measure of employment used to reflect long-term employment such as the operations and maintenance phase.

3.1.5 Pricing and Discounting

All prices considered as part of the assessment are **real prices** (i.e., they reflect cost estimates as expressed in 2024 prices).

The analysis, where appropriate, also provides estimates based on the Net Present Value (NPV) of activity. This is based on His Majesty (HM) Treasury's guidance on economic appraisal as included in the Green Book (HM Treasury, 2022), where it is recommended that impacts occurring over long periods of time are discounted to account for the different value people give to present compared to future consumption. The HMT's suggested discount factor of 3.5% is applied.

3.2 Economic Impact Modelling

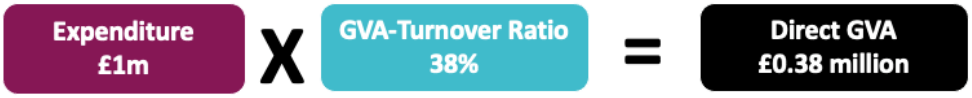
This section provides some details on the Input-Output methodology applied.

Having gathered data on spending by project element and assigned to offshore or onshore, next first step involves estimating the total spending supported by the contracts performed in each study area. Based on the turnover supported, it is then possible to estimate the direct employment and direct GVA supported by the

Proposed Development by applying the relevant turnover per GVA and turnover per job ratios from the ONS Annual Business Survey.

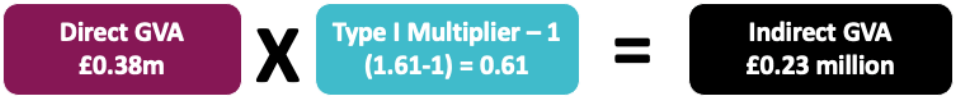
This is illustrated in Figure 3.3 below.

Figure 3.3 Direct GVA



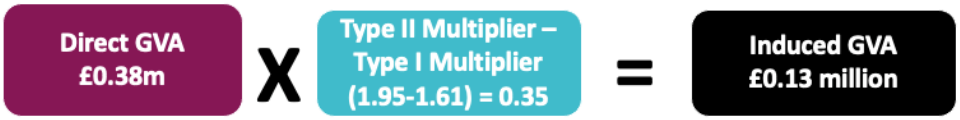
Alongside the direct impact generated by the project, there will be an impact on the supply chain of those businesses being awarded project-related contracts. To estimate indirect impacts, it was necessary to apply the direct GVA and direct employment Type 1 employment and GVA multipliers as sourced from the UK Input-Output Tables. How Type 1 multipliers are applied is shown in the figures below.

Figure 3.4 Indirect GVA



In line with industry best practice, for the assessment of GVA and employment impacts, the analysis focuses the direct and indirect impacts. In addition, the analysis also reports on induced impacts, which are the result of those employed to carry out project-related work spending their salaries and wages across the economy. To estimate induced impacts, it was necessary to apply Type 2 UK Employment and GVA multipliers to the direct GVA and employment supported by the project.

Figure 3.5 Induced GVA



As the economic impact multipliers reflect activity occurring within the UK economy, it is necessary to adjust multipliers to reflect activity occurring in each of the study areas. This is based on an analysis of household spending patterns and knowledge of supply chains at the regional level.

4. References

BVG Associates. (2021). UK and Scottish content baseline and roadmap.
BVG Associates. (2024, January). The Online Guide to a Floating Wind Farm. Retrieved from BVG Associates: https://guidetofloatingoffshorewind.com
HM Treasury. (2022). The Green Book: Appraisal and Evaluation in Central Government.
Kantar Taylor Nelson Sofres (TNS). (2020). GB Day Visitor 2022.
Kantar TNS. (2020). GB Tourism Survey.
Muir Mhòr Offshore Wind Farm. (2023). Muir Mhòr Offshore Wind Farm Onshore Environmental Impact Assessment (EIA) Scoping Report. Document Number MMH-GBE-A004-CNT-0001.
Muir Mhòr Offshore Wind Farm. (2023). Muir Mhòr Offshore Wind Farm Outlook Statement.
National Records of Scotland. (2020). 2018-based Principal Population Projections.
National Records of Scotland. (2024). Mid-2022 Population Estimates Scotland.
Office for National Statistics (ONS). (2020). Principal Population Projections 2020-based.
Offshore Renewable Energy Catapult. (2020). The Offshore Wind O&M Opportunity.
ONS. (2022). Annual Business Survey 2020.
ONS. (2022). Mid-Year Population Estimates UK 2020.
ONS. (2023). Annual Survey of Hours and Earnings 2023.
ONS. (2023). Business Register and Employment Survey 2021.
ONS. (2023). International Passenger Survey.
ONS. (2023). UK Input Output Tables 2019.
Scottish Government. (2018). National Performance Framework.
Scottish Government. (2020). Offshore Wind Policy Statement.
Scottish Government. (2022). Defining 'local area' for assessing impact of offshore renewables and other marine developments: guidance principles.
Scottish Government. (2022). National Strategy for Economic Transformation.
Scottish Government. (2022). Scottish Annual Business Statistics 2020.
Scottish Government. (2022). Scottish Input Output Tables 2019.
Scottish Government. (2023). Annual Growth Sector Statistics 2021.
Scottish Government. (2023). National Planning Framework 4.
UK Government. (2021). UK Net Zero Strategy: Build Back Better.

BiGGAR Economics

BiGGAR Economics, 67 Shandwick Place,
Edinburgh, Scotland EH2 4SD

info@biggareconomics.co.uk

biggareconomics.co.uk

© Copyright 2024. BiGGAR Economics Ltd. All rights reserved.