



Morecambe Offshore Windfarm: Generation Assets Environmental Statement

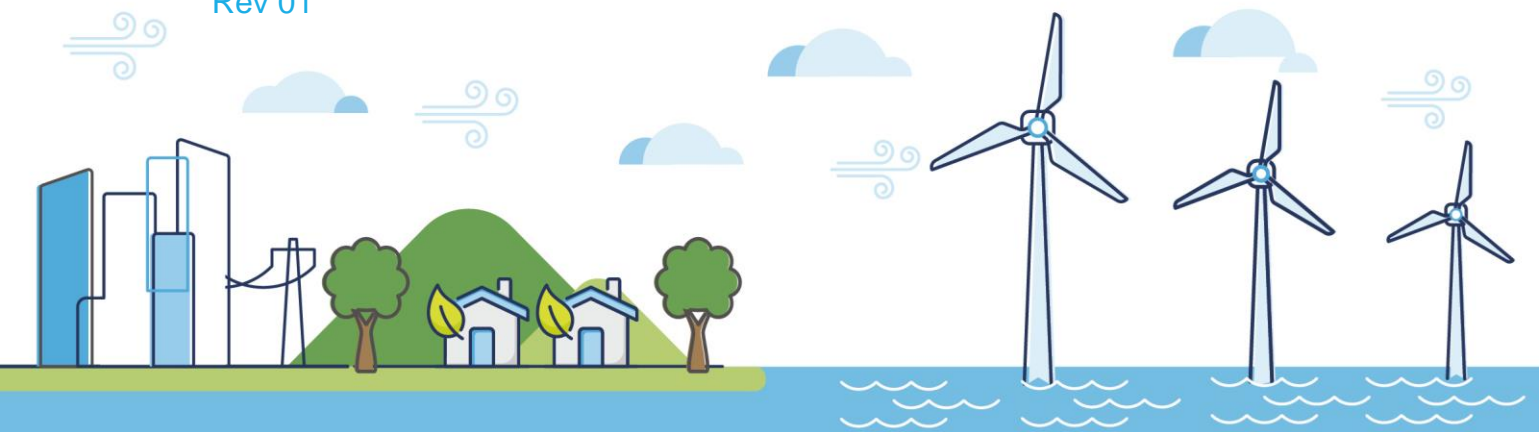
Volume 5

Appendix 20.1 Offshore Windfarm Economic Impact Assessment Methodology

PINS Document Reference: 5.2.20.1

APFP Regulation: 5(2)(a)

Rev 01



Document History

Doc No	MOR001-FLO-CON-ENV-RPT-1201	Rev	01
Alt Doc No	PC1165-RHD-ES-XX-RP-Z-0046		
Document Status	Approved for Use	Doc Date	May 2024
PINS Doc Ref	5.2.20.1	APFP Ref	5(2)(a)

Rev	Date	Doc Status	Originator	Reviewer	Approver	Modifications
01	May 2024	Approved for Use	BiGGAR Economics Limited	Morecambe Offshore Windfarm Ltd	Morecambe Offshore Windfarm Ltd	n/a

Economic Impact of Offshore Wind

Methodology

BiGGAR Economics Note
December 2022



Contents

1. Methodology	1
-----------------------	----------



1.

Offshore Wind Methodology

This note sets out BiGGAR Economics methodology for assessing the economic impacts from offshore wind projects. This document can be amended and appended to our submissions.

1.1 Approach to Impacts from Offshore Wind

1.1.1 Key Steps in Assessing the Contribution of an Offshore Wind Development

Before the analysis of economic impacts is undertaken, it is necessary to select the study areas for inclusion in the assessment. This process is based on separate guidance that BiGGAR Economics developed on behalf of Marine Scotland¹.

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 an offshore wind project is based on a purposely-built tool developed by BiGGAR Economics. As set out in **Figure 1-1**, the analysis is based on an Input-Output methodology built upon the following steps:

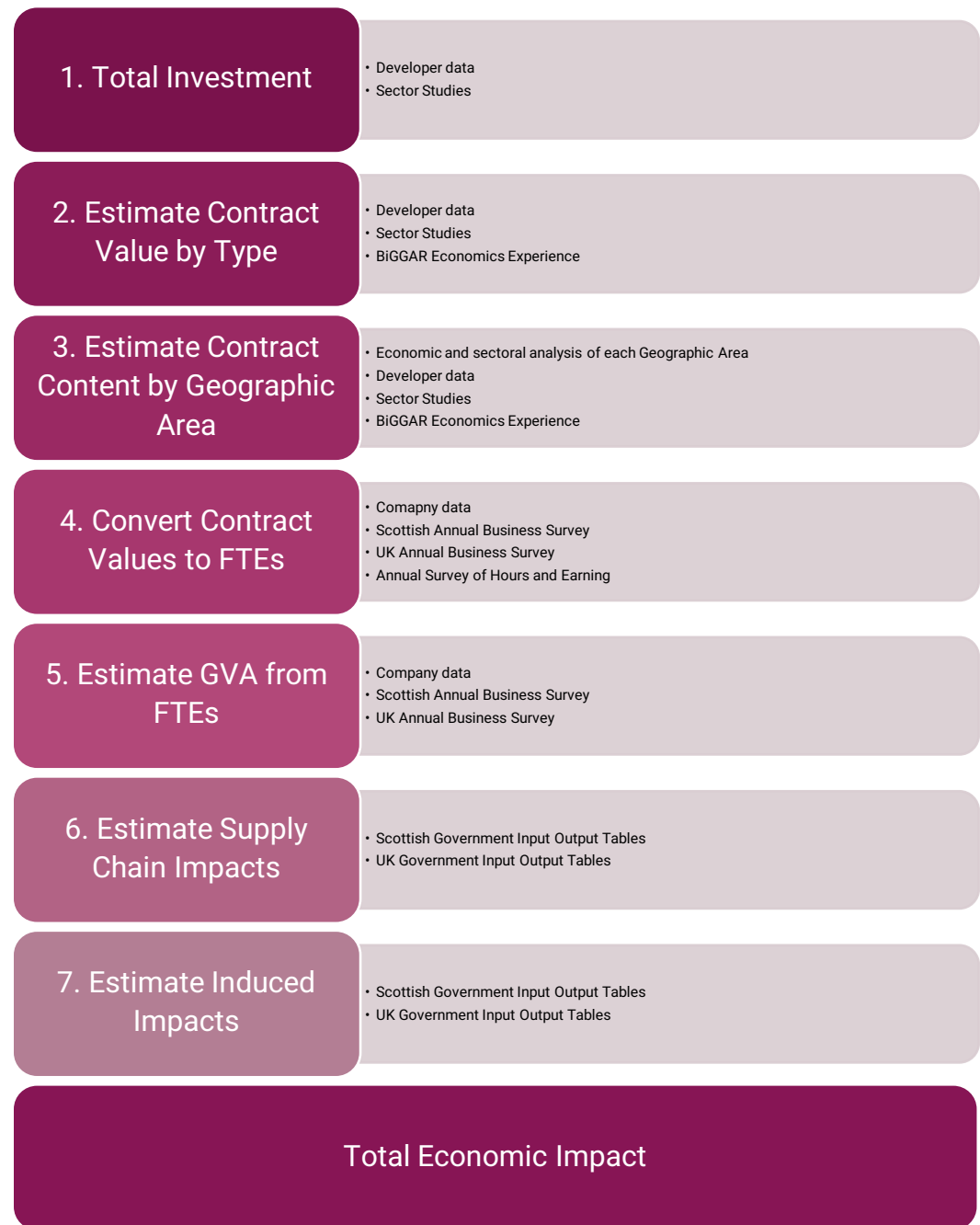
- estimation of the total investment associated with the project (construction and development and operations and maintenance);
- estimation of contract value by type;
- estimation of contract content by geographical area;
- conversion of contracts into the direct employment supported by the project;
- 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.

While data on decommissioning spending may not be available early on in a project's development, the analysis provides an estimate of economic activity during this phase. This assumes that decommissioning would take place in reverse of construction and would involve the performance of similar contracts.

¹ BiGGAR Economics on behalf of Marine Scotland (2022), Defining 'Local Area' for assessing impact of offshore renewables and other marine developments Guidance Principles.



Figure 1-1 Economic Impact Methodology and Data Sources



Source: BiGGAR Economics Approach to Offshore Wind

1.1.2 Information Requirements and Data Sources

The assessment requires knowledge of a series of parameters including:

- number of turbines and their capacity;
- foundations type (floating or fixed);
- costs by project element;
- estimates of content by study area; and
- timescales of activity.



Key sources of information, include:

- publicly available information from the Scoping Report;
- commercial data from the developer;
- classification of economic activity from the ONS 'Standard Industrial Classification of Economic Activity'²;
- UK Annual Business Survey for data on GVA, turnover and employment across the UK³; and
- UK Input-Output multipliers for Type 1 and Type 2 GVA and employment multipliers⁴.

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

1.1.3 Dimensions of Impact and Key Terms

In line with industry best practice, for the purposes of 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 offshore wind project.
- **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 offshore wind project.

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 project (**induced economic impacts**).

Economic impacts are expressed in terms of:

- **Gross Value Added (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 as that characterising the operations and maintenance phase.

1.1.4 Pricing and Discounting

All prices considered as part of the assessment are **real prices** (i.e., they reflect cost estimates as expressed in 2022 prices).

² Office for National Statistics (ONS), UK Standard Industrial Classification of Economic Activities 2007.

³ ONS (2022), non-financial business economy, UK (Annual Business Survey): 2020 provisional results.

⁴ ONS (2022), UK input-output analytical tables - industry by industry.



The analysis, where appropriate, also provides estimates based on the Net Present Value (NPV) of activity. This is based on His Majesty Treasury's guidance on economic appraisal as included in the Green Book⁵, 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.

1.2 Economic Impact Modelling

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

Having gathered data on spending by project element, the 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 project by applying the relevant turnover per GVA and turnover per job ratios from the ONS Annual Business Survey.

This is illustrated in the figure below.

Figure 1-2 Turnover per GVA

$$\text{Expenditure } \text{£1m} \times \text{GVA-Turnover Ratio } 38\% = \text{Direct GVA } \text{£0.38 million}$$

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 to 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 show in the figures below.

Figure 1-3 Indirect GVA

$$\text{Direct GVA } \text{£0.38m} \times \text{Type I Multiplier - 1 } (1.61-1) = 0.61 = \text{Indirect GVA } \text{£0.23 million}$$

While not considered as part of the assessment, 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.

⁵ HM Treasury (2022), The Green Book 2022.



Figure 1-4 Induced GVA

$$\begin{array}{|c|} \hline \text{Direct GVA} \\ \hline \text{£0.38m} \\ \hline \end{array} \times \begin{array}{|c|} \hline \text{Type II Multiplier –} \\ \hline \text{Type I Multiplier} \\ \hline (1.95-1.61) = 0.35 \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Induced GVA} \\ \hline \text{£0.13 million} \\ \hline \end{array}$$

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 analysis of household spending patterns and knowledge of supply chains at regional level.

BiGGAR Economics, Pentlands Science Park,
Bush Loan Penicuik, Midlothian, Scotland EH26 0PZ

info@biggareconomics.co.uk

biggareconomics.co.uk

© Copyright 2022. BiGGAR Economics Ltd. All rights reserved.

