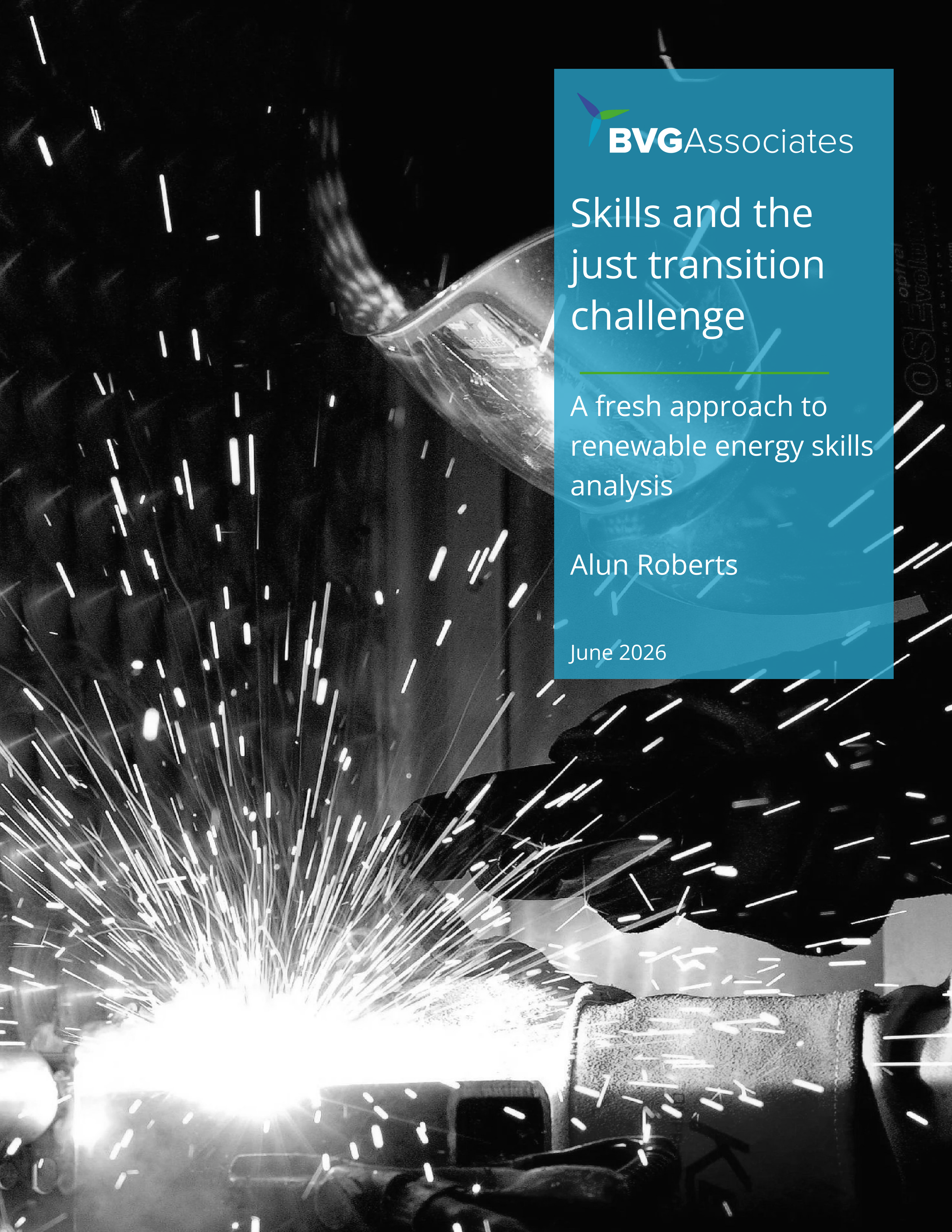


BVG Associates

Skills and the just transition challenge

A fresh approach to renewable energy skills analysis

Alun Roberts

June 2026

Renewable energy skills analysis needs a new approach that:

Forecasts actual numbers of people, as well as the amount employment needed (in terms of full-time equivalent (FTE) years), to reflect part-time work and cross sector mobility

Identifies priority occupations where shortages could affect delivery to avoid unfocused skills interventions

Identifies occupations suitable for local recruitment

Produces clear, evidence-based recommendations aligned to policy goals such as apprenticeships, NEETs and local inclusion

Uses occupational classification systems so results are trusted, comparable and easy for policymakers and stakeholders to relate to and act on.

Introduction

Renewable energy is political.

- It involves large infrastructure projects that attract attention and need public support
- It is used to tackle major public policy goals, such as climate change and energy security, and
- It affects fuel prices and consumer bills and therefore has significant economic consequences.

The battle for political support has often been fought on the economic benefits of projects. For many years, political and industry focus has been on local content and job creation. BVGA by developing the first a local content reporting framework for offshore wind in 2013[1] has long had active role in this area. We evolved this approach to model job creation in 2017.[2] We have applied these methodologies to dozens of projects in all continents and increasingly for a wider range of renewable energy technologies.

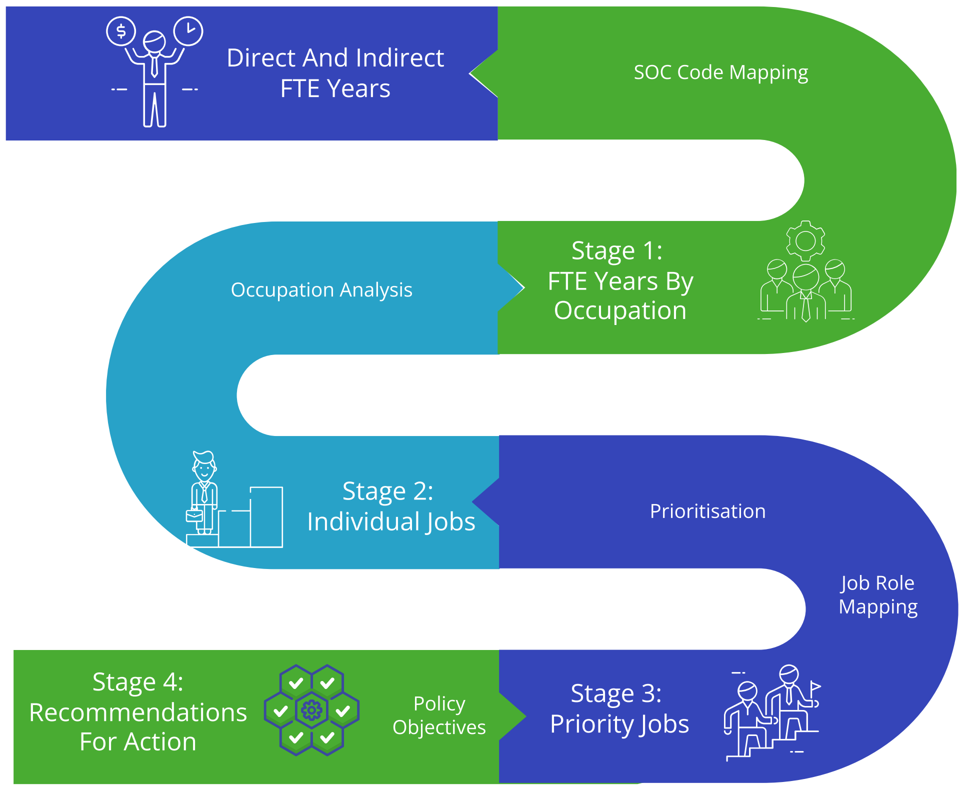
In recent years, this focus has become more nuanced. We have seen a greater interest in the nature of jobs, and to what extent they can be fulfilled by apprentices, NEETs (those not in education, employment or training) or those from disadvantaged communities. Identification of required training provision also often arises.

These are simple questions but the analysis to find answers is complex. In this white paper, we present a fresh approach. It draws on governments' occupational classification system to answer the following questions:

- What kinds of occupations will be most affected?
- How many individual jobs will be created?
- What jobs need to be targeted for skills development?
- What does industry and government need to do to meet policy objectives?

[1] https://bvgassociates.com/publications/methodology-for-measuring-uk-content-for-uk-offshore-wind-farms/
[2] https://bvgassociates.com/publications/a-new-economic-impact-methodology-for-offshore-wind

The BVGA approach to skill analysis



An input into the process is the total number of direct and indirect FTE years. Our 2017 white paper describes our innovative and proprietary methodology to calculate FTE. The analysis needs to be conducted at a reasonable level of granularity to enable rational assumptions to be made.[3]

Table 1 provides some important definitions used later.

Table 1 Definitions

Term	Definition
FTE Year	The equivalent of one full-time job for one year
Direct	Created by the project developer or its larger suppliers
Indirect	Created by the developer's small suppliers or large supplier's subcontractors

[3] The breakdown proposed for the 2026 update for Crown Estate Scotland's SCDS update is suitable

Stage 1: FTE years by occupation

The first stage is to map calculated annual FTE years of employment onto an occupational classification system. This calculates the time-based demand for each occupation, changing over time.

We conduct the mapping process in two stages:
1. Direct occupations. We hold data on the occupations needed for development, manufacturing, installation, operations and decommissioning. For each category of supply or project phase, we estimate the percentage of person hours delivered by each occupation. We use this to calculate the FTE years required for each occupation.
2. Indirect occupations. This is more complex because the activities are less 'visible':
   o Suppliers may operate in multiple industries and
   o The analysis must consider all tiers of the supply chain.

Our approach for indirect occupations is to develop representative occupation breakdowns that can be applied to multiple supply chain categories. For example, the supply chain of a wind turbine tower supplier includes steel plate, fabricated internal structures (ladders and walkways), forged flanges and coatings. These elements are similar, in production terms, to offshore wind foundations. With an understanding of the breakdown of activities and their costs in the supply chain, we can put together the indirect occupations needed.

Even if this analysis is not developed further, the interim outputs are valuable. It places job creation in the context of an existing, understood framework. It also challenges the idea that jobs in renewables are unique and distinct. It shows that many of the occupations needed by renewables are in generic business functions or have close parallels with those in other sectors.

Occupational classification systems

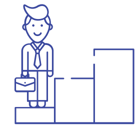
Most governments use an occupational classification system and they are similar in structure. The UK's SOC (2020 extended) has the hierarchy shown in Table 1.[4] At the Sub-Unit Group level, there are almost 1,400 occupations but is likely that the vast majority are not directly relevant renewable energy. The granularity of other classification systems varies. The EU's European Skills, Competences, Qualifications and Occupations (ESCO) system has about 3,000 occupations, while the US Standard Occupational Classification has less than 900.

Table 2 UK's Standard Occupational Classification structure.

Level	Number of Categories	Example
Major Group	9	Professional Occupations; Process
Sub-Major Group	26	Science, Research, Engineering and Technology Professionals
Minor Group	104	Engineering professionals
Unit Group	412	Civil engineers
Sub-Unit Group	1384	Geotechnical engineers

[4] https://www.ons.gov.uk/methodology/classificationsandstandards/standardoccupationalclassificationsoc/standardoccupationalclassificationsocextensionproject

Stage 2: Individual jobs



Stage 1 develops an understanding of the number of FTE years for each occupation needed by an industry or a project.

An understanding of the occupations for each supply chain category opens up the opportunity to build a picture of the number of individuals involved.

The process of converting the number of FTE years of employment to the number of individual jobs depends on whether looking at an industry as a whole or a subset (such as a project or portfolio of projects).

Industry analysis

The number of individuals needed for each occupation by an industry is calculated by:

$$I = F_{max} A$$

Where:

I = Number of individuals

Fmax = the maximum annual number of FTE employees needed for that occupation over the period in question

A = The proportion of time that each individual doing that occupation will be active in the industry

Figure 2 shows an example of the illustrative number of geotechnical engineer FTE employees needed annually. The maximum number of FTE employees in a year is 350. If geotechnical engineers working in an industry worked full time and only ever worked in that industry, 350 individual geotechnical engineers would be needed. Although in reality this will not be the case it does give reasonable estimates at an occupational level.

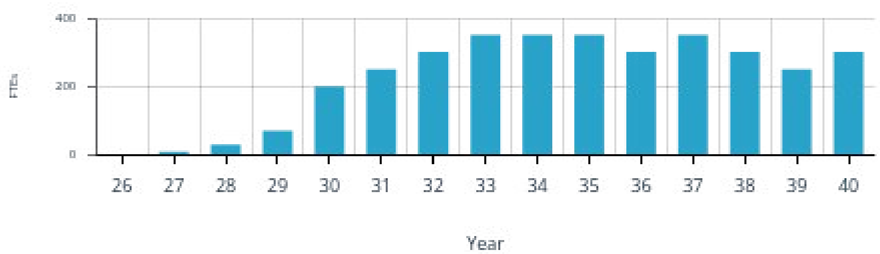


Figure 2 Number of full-time equivalent geotechnical engineers needed annually

We know that offshore geotechnical engineers may also work in oil and gas. We might therefore conclude that the geotechnical engineers working in offshore wind on average work 40% of their careers in the sector.

Based on this assessment, offshore wind needs:

$$350 \div 40\% = 875 \text{ individual geotechnical engineers}$$

Project analysis

A project analysis is more complex because a project has a time-limited demand for most occupations. For an offshore wind project, geotechnical engineers may only be needed for a short period associated with site investigations. An individual may contribute to a renewable energy project with varying duration and intensity (the proportion of role allocated to the project), for example:

- Full-time for a long period (more than a year)
- Part-time for a long period
- Full-time for a short period, or
- Part-time for a short period.

The duration of an occupation depends on the demand for that occupation and natural workforce turnover. Many workers may also work part time or work on different activities within a full-time job.

It is possible to make reasonable judgements on the duration for which each occupation is required and the intensity. Alongside this, we can apply typical part-time working patterns and churn from data published by governments.

We can therefore calculate the number of individuals for a given occupation for a project from the number of FTE years:

$$\mathbf{I=F/(WD)}$$

Where:

I = Number of individuals

F = FTE years of employment required

W = Mean work intensity (the proportion of time in a typical day devoted to a project)

D = Average work duration (the average time in years an individual spends in a given occupation in their career)

For example, if we modelled a total demand of 200 FTE years of employment for a given occupation but on average workers were working 70% full time for a period of 30 months (2.5 years), the number of individuals would be calculated as:

$$200 \div (0.7 \times 2.5) = 114 \text{ (rounded)}$$

Stage 3: Priority job roles

An analysis of occupations provides a good understanding of workforce availability demands but it may lack the detail to inform judgements on skills and training policy development.

Each occupation identified is likely to cover several job roles. For example, the UK SOC category 'Procurement and purchasing managers and directors', will include specific job roles such as Procurement Director, Procurement Manager and Package Manager. It therefore makes sense to focus on priority occupations before a more detailed assessment of job roles. The criteria used to prioritise occupations will be context-specific but will include:

- The availability in labour market
- The importance in successful project delivery
- The number of individuals needed
- The transferability from other industries, and
- The uniqueness of the technical requirement.

Table 3 Intensity and duration of selected occupations.

Intensity and duration	Examples
Full-time for a long period	Turbine technician (operations), project manager, ship captain (operations), consents manager
Part-time for a long period	Asset manager, supply chain manager
Full-time for a short period	Turbine technician (commissioning), welder, ship captain (installation)
Part-time for a short period	Consultant, lawyer

Selecting and weighting these criteria will identify problems that will not be solved by targeted recruitment and in-house career development.

We are used to seeing claims of the number of jobs needed by a growing industry. Large numbers do not always indicate a problem that companies cannot solve. UK offshore wind now has about 15 GW of installed capacity and the Offshore Wind Industry Council estimated that, in 2025, the industry employed about 40,000 people[5]. Only a small fraction of these 40 000 will have completed courses provided by specific skills and training providers. For most roles, existing external training provision is adequate, alongside on-the-job training, even if companies find recruitment in some areas challenging.

By focusing on the key occupations, we can identify the individual job roles and calculate the number of individuals needed for each.

[5] https://www.renewableuk.com/media/jvsdey0k/ruk-owic-offshore-wind-skills-report_2025.pdf

Stage 4 Recommendations for action

Our approach builds a logical picture of the roles needed and an informed evidence base for recommendations for action.

These recommendations will depend on the public policy context. We have seen a defined objectives targeting SMEs, NEETs, apprentices and disadvantaged communities. Some of these objectives may require an additional layer of analysis, for example identifying the job roles most likely to be filled by NEETs.

The locational aspect is a particular challenge. The concept of the "Just Transition" is that workers in traditional sectors such as oil and gas can find roles in renewables. The problem is that renewables are generally capital intensive. This means that the demand for most roles is short-lived as they are needed mainly for manufacturing and installation. They are not tied to a specific place in the way that oil and gas roles are. A press article on 14 April 2026 (Surrounded by windfarms but out of work: the reality of the green jobs boom on England's east coast) highlighted this problem[6]. Workers in the Lowestoft area were struggling to find work despite having relevant technical qualifications and the southern North Sea pipeline of offshore wind projects. In practice, jobs may exist, but the employers recruiting for them are not hiring in the local area.

Conclusion

High forecasts of job creation in renewable energy can both excite and alarm policymakers. Excitement is driven by the prospect of economic benefits and potential revitalisation of disadvantaged communities. Alarm is caused by the potential need to train a new workforce or risk jobs being fulfilled by overseas workers. Policymakers have been encouraged to do something about the workforce development without clear evidence of any problem. The 2015 OWIC report concluded that the UK had an offshore wind workforce of 40,000. Arguably this has been achieved without any substantive actions by government. The figure may have been higher if actions had been taken but it does show that actions need to be focused to have an impact – and that actions to establish local manufacturing or suppliers of services are needed to create the demand for workforce and workforce development.

This white paper has been developed to demonstrate that such a focus is possible. It provides a framework for governments, enabling organisations, project developers and suppliers to understand and act on the skills challenges in renewable energy industries. In many countries we have seen governments use offshore wind to meet public social policy goals. Too often, actions are not grounded in evidence. The approach outlined here aims to change that.

[6] https://www.theguardian.com/environment/2026/apr/14/windfarm-reality-green-jobs-boom-englands-east-coast-unemployment

Alun Roberts
Director of Economics
BVG Associates

Alun leads BVG Associates's work in supporting renewable energy companies compete and win in lease and offtake auctions. He delivers strategic support to strengthen bids and provide a quantitative understanding of the competitive landscape. He offers particular insight into non-price factors such as economic benefits and workforce development. He has over 15 years of experience with BVGA, supporting the development of the wind industry with supply-chain knowledge and insights on industry and government strategies.

Clients benefit from his understanding of supply-chain dynamics and the political pressures on the wind industry. His strong communication skills maximise the impact of his work for clients. Alun seeks to simplify complex problems ensuring that his work is focused on solving clients' key problems.

BVG Associates

BVG Associates provides strategy consulting in the wind industry, globally. We combine deep wind industry knowledge with approaches from the world of business consulting. We help our clients succeed in a sustainable global electricity system founded on renewables.
BVG Associates was formed in 2006 and plays a key role in globalising offshore wind:

- We have a client base including customers of all sizes active wherever the wind industry is active.
- ·We have published many landmark reports on the future of the industry, cost of energy and supply chain.

Contact

AER@bvgassociates.com
+44 1793 799 022
The Blackthorn Centre, Purton Road
Cricklade
Swindon, SN6 6HY