

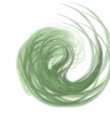
Cumbria Offshore Wind

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Thomas Jardine & Co and The Green Edge



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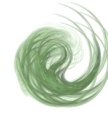


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1.0 Executive summary

1.1 Assessment of what would be a realistic Planning, Manufacturing, Erection, Operations, Maintenance and Recycling ambition for Cumbria.

Planning is largely delivered by specialist national/multinational organisations. There may be an opportunity for local specialist firms (such as environmental) to be subcontracted to these specialists. If these subcontractors are prepared to deliver their services outside of Cumbria, there is also an opportunity for them to become part of the OSW (Offshore Wind) supply chain.

Manufacturing is delivered by large national/multinational firms. The opportunity for Cumbrian firms is to supply high value low volume parts to these manufacturers.

Erection is delivered by large national/multinational firms working from deep water ports using some specialist local contractors to support them. The opportunity for Cumbrian firms is to deliver key parts to the erection process (such as concrete supply or unexploded ordnance surveys and removal) If these subcontractors are prepared to deliver their services outside of Cumbria there is an opportunity for them to become part of the OSW supply chain.

Operations and Maintenance (O&M) are delivered locally and offers Cumbria the greatest opportunity within the new Morgan and Mona fields and Morecambe OSW. Alongside this are support services such as training and development from the likes of Cumbrian Colleges, Training Providers and University of Cumbria which could contribute to an inflow of OSW talent to the county.

Recycling or repurposing of OSW assets offers Cumbria a real opportunity to become global experts in this field as we have some of the oldest OSW sites coming to the end of their initial predicted life span.

1.2 What would this mean in terms of numbers of staff and with what specific skills, over what timescales and in what locations.

Currently there are around 500 Cumbrians working in the OSW sector.

There are opportunities for Cumbrian firms to supply OSW nationally and globally. Supporting firms that want to supply the OSW supply chain in planning, manufacturing or erection will help either safeguard jobs (if these firms are diversifying slightly from supplying Sellafield or BAe then they are less prone to occasional drops in demand from these supply chains thus making all Cumbrian Supply Chains more economically sustainable). RTC North is prepared to do business diagnostics if firms are considering supplying the OSW sector These will require mainly higher-level skills and would have an impact immediately on clusters such as Ulverston, around Barrow, Sellafield, and Carlisle.

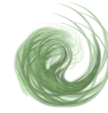
The development of Morgan & Mona will lead to some subcontracting opportunities for the assembly, construction, and installation stage from 2027 to 2029. It is likely that these jobs will be focused on Barrow and Workington and skills required will range from unskilled warehouse to highly skilled specialist managers etc.

Operations and maintenance of Morgan & Mona and Morecambe will probably be based in Barrow and will be there from 2029 to 2054. There will be around 135 additional full-time roles from unskilled to highly qualified professionals.

Support services for Morgan & Mona and Morecambe should provide around 159 jobs from 2024 to 2054. Not all of these will come to Cumbria. But if the colleges can provide skills training for OSW, then potentially, Cumbria could create training/education jobs that support the national OSW sector (Furness are already delivering apprenticeship training for ORSTED and Lakes College provides SCADA training). In addition to the direct jobs, there will be 465 indirect jobs created that will be spread across the OSW supply chain.



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The University of Cumbria already delivers Project Management Higher Apprenticeships, and its new Furness Campus is in advanced plans of delivering courses for Siemens.

1.3 What does that then mean in terms of detailed skills provision requirements (qualifications, curriculum, numbers, locations).

OSW requires a range of specialist specific skills that are based on the supply of energy from offshore wind platforms. A lot of these skills are transferable from other energy sectors (nuclear for example) but will require specific translation to the needs of working offshore.

There are a range of sector / regulatory specific certificates that will need provided from training providers and colleges. There are higher skills (such as SCADA management, project management, engineering management) that can be provided by colleges and the University of Cumbria.

The curriculum will need to be developed alongside the firms supporting OSW and we already have examples of this with Furness College and the University of Cumbria. Numbers on these courses will depend on OSW demand to ensure economic viability and it is likely that the specific OSW courses will need to attract students from outside of Cumbria so the Barrow Location may be best for OSW specific courses.

The emerging decommissioning of older OSW sites may lead to specialist courses based at Lakes College supporting the development of this sector. The new campus at the University of Cumbria at Carlisle and their Ambleside Campus could be used to provide project management and leadership courses for the growing OSW sector.

Other colleges in Cumbria will continue to provide engineering and other courses that will support the need of Cumbrian firms wanting to support the OSW sector.

1.4 How does that fit with what is available now, what do we need to change/develop.

Cumbrian colleges and training providers already support the training needs of our engineering sector. The sector is already competitive for qualified employees and it would be hoped that adding another route for employment in green energy production may encourage more young people to choose engineering/IT as viable Cumbrian occupation.

Cumbria needs to raise national awareness of the skilled workforce already based here that will attract more firms to the area and secure Cumbria and Morecambe Bay as an energy cluster.

Cumbria also needs to encourage more specialist local firms to consider OSW as a potential additional route to market.

Finally Cumbrian firms, training providers and its university needs to highlight the real opportunities for careers in the Cumbrian Clean Energy Sector to school children and early retirees.

2.0 Assessment of what would be a realistic manufacturing & Operations & Maintenance based ambition for Cumbria.

2.1 Understanding the windfarm stages of development.

Energy from the offshore windfarm sector is now a critical part of many countries energies strategies across the globe and in the UK¹. Many countries including the USA are giving significant tax breaks to encourage the growth of this sector². The lifecycle stages of the windfarm process³ are: planning, manufacturing, erection, operations, maintenance, and recycling/repurposing. As a relatively new part of the energy sector offshore wind expansion

¹ [ReEnergise-Autumn2022-DV.pdf \(catapult.org.uk\)](#) and Decarbonising the power sector Department for Energy Security & Net Zero (March 2023) National Audit Office (Fig 2) and WINNING THE GLOBAL GREEN RACE Luke Murphy IPPR (March 2023)

² Building a Clean Energy Economy: a guidebook to the inflation reduction acts investments in clean energy and climate control Jan 23 CleanEnergy.com and inflation_reduction_act_one_page_summary

³ See for example : Guide to an offshore wind farm (Apr 19) The Crown Estate & Catapult



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faces bottlenecks because of constraints caused by knowledge and skills been held in more established energy sub-sectors. The opportunity is that these skills and knowledge are transferable so areas (like Cumbria) with an established energy sector already have skilled technicians, engineers and training providers who could help reduce these constraints.

The **planning** stage of the process involves highly technical skills. Centralised deployed experts have to deal with national government and agencies (Crown Estate etc.) so tend to be based in major cities. However, specialists are required to work in and around the sites (fish, bird specialists, environmental, marine) as part of the ongoing planning process⁴.

UK in general was slow to develop a **manufacturing** base for the offshore wind platforms so other countries are more established in the manufacturing process⁵. This has been partially corrected with the establishment of UK manufacturing bases servicing the North Sea Windfarms.

The offshore windfarm sector now tends to rely on established manufacturers to produce the platforms and then use established experts to ship and **erect** these rigs into place using regional deep-water ports as transshipment bases⁶. This automatically rules out Cumbria as a major manufacturing base. However, like all modern supply chains windfarm construction relies on the supply of high value technical parts to the main manufacturer and Cumbria has several well-established manufacturers already supplying these manufacturers. There is also as a significant opportunity for local concrete suppliers should fixed riggs be erected.⁷

The sea off Cumbria was part of the pioneering edge of this sector consequently Cumbria already has an established infrastructure able to support the **operations and maintenance** of offshore windfarms. In both the UK and globally, O&M will become the second largest offshore wind sub sector market after turbine supply by 2030⁸. It is understood that 95% of those employed in O&M live within 30 minutes of the port supporting the offshore windfarm.⁹

As home to one of the earliest offshore windfarms Cumbria will be one of the first to face the decommissioning¹⁰/**repurposing/recycling**. As the home to the Sellafield site Cumbria already has an international reputation for skills in decommissioning sites with challenging access requirements.

There is a detailed understanding of the skills¹¹ required to support this sector¹². By 2030, 80% of the jobs in offshore wind will be concentrated in 9 key job families sub employment groups¹³. The Green Port Hull Report and the Offshore Wind Industry Council¹⁴ offer a comprehensive list of the roles and skills required in the offshore wind sector¹⁵.

Nationally total UK Offshore Wind Workforce is set to rise by over 66,000 (see table 1) (with the North West having workforce of 791¹⁶) with an average annual investment of £17.2bn (2022-2030)¹⁷ The industry has agreed with 2.5% of future workforce to be recruited through apprenticeships ¹⁸ (that's 2.5% of (97,465-31,082) = 1,659

⁴ For specific roles involved in planning see Appendix 5 Planning Roles extracted from Job roles in offshore wind (2017) regional Growth fund Green Port Hull (BVG Associates)

⁵ FUTURE OF WIND Deployment, investment, technology, grid integration and socio-economic aspects (2019) IRENA (p67)

⁶ [2208-CumbriaCleanEnergyStrategy.pdf \(thecumbrialep.co.uk\)](#) p30

⁷ FUTURE OF WIND Deployment, investment, technology, grid integration and socio-economic aspects (2019) IRENA (p72)

⁸ OFFSHORE WIND OPERATIONS & MAINTENANCE A £9 BILLION PER YEAR OPPORTUNITY BY 2030 FOR THE UK TO SEIZE (Catapult Offshore Renewable Energy)

⁹ Stakeholder interview

¹⁰ OFFSHORE WIND OPPORTUNITY ASSESSMENT- April 2021 and interviews with stakeholders

¹¹ Your Career in Offshore Wind ORSTED & Renewable UK ([your career in offshore wind.pdf \(ymaws.com\)](#))

¹² [Aura-EU-Skills-Study-Summary-Report-Oct-2018.pdf \(catapult.org.uk\)](#)

¹³ UK OFFSHORE ENERGY WORKFORCE TRANSFERABILITY REVIEW Robert Gordon University (May 2021) p10

¹⁴ Offshore Wind Skills Intelligence Report (May 22) Offshore Wind Industry Council

¹⁵ Job roles in offshore wind (2017) regional Growth fund Green Port Hull (BVG Associates)

¹⁶ Offshore Wind Skills Intelligence Report (May 2022) Offshore Wind Council p34

¹⁷ Offshore Wind Skills Intelligence Report (May 2022) Offshore Wind Council

¹⁸ Offshore Wind Skills Intelligence Report (May 2022) Offshore Wind Council

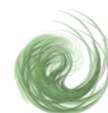


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over 8 years). There are numerous ratios that predict the future number of jobs to MW of power producer by these windfarms¹⁹.



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	2022	2030
Total UK Offshore Wind Workforce	31,082	97,465
Direct workforce	19,591	61,361
Indirect workforce	11,491	36,104

Table 1 UK Offshore Wind Workforce Source: Offshore Wind Skills Intelligence Report (May 2022) Offshore Wind Council

2.2 Floating or fixed rigs impact on MANEX, CAPEX and OPEX for Barrow.

The five ports identified that could support the new Morgan and Mona fields are Barrow, Heysham, Holyhead, Mostyn and Birkenhead. As already discussed, the main manufacturing bases are unlikely to be in Cumbria and transshipment will probably take part at the deep-water ports of either Belfast or Liverpool. Of the five other ports, Barrow is a strong contender to be first choice to cover the operations and maintenance period of the two fields, but capacity may need to be shared across all the ports (for both political and practical reasons). Barrow is also likely to be the base for the O&M for the new Morecambe OSW Field.²⁰

With this in mind, the breakdown of skills required from Offshore wind Industry Council²¹ and Jobs Roles in Offshore²² note that if we move from fixed to floating wind projects then MANEX (manufacturing) share which will be at larger ports moves from 20% to 30% share of spend at cost of CAPEX (preconstruction and construction) which has some opportunity for smaller ports such as Barrow and to a lesser extent Heysham. The move from fixed to floating would also reduce OPEX (operations & maintenance) from 50% to 45% this would potentially reduce opportunity for Barrow and Heysham²³

2.3 Current talent pool and potential extra opportunities that may increase Cumbria's share of jobs.

It is inherently difficult to capture employee numbers for local areas especially for less established industrial sectors. Datacity has produced the following table that estimates current clean energy jobs for Cumbria. This gives some indication of the talent pool that may support the rising OSW sector. Appendix 6 gives a guide to Cumbrian based businesses currently linked to OSW²⁴.

Table 2 Current staff levels produced for us by Datacity²⁵

	NW of England (nearest 100)	Cumbria (nearest 100)
Offshore Wind	1400	500
Onshore Wind	400	-
Solar	200	-
Nuclear	4400	3500*
Hydropower	500	500

*Note: the traditional operations at Sellafield employing 10-11,000 fall outside the industrial classifications used by Datacity used in this table. Please note that companies are not required to declare the number of employees. Datacity find all the companies that have at least one address in Cumbria. The number of employees reflects the total employees across all of companies' locations.

¹⁹ Wind Power and Job Creation (19 December 2019) MDPI Luigi Aldieri , Jonas Grafström , Kristoffer Sundström and Concetto Paolo Vinci MDPI

²⁰ <https://morecambeoffshorewind.com/> and from interview with stakeholder

²¹ Offshore Wind Skills Intelligence Report (May 2022) Offshore Wind Council p17

²² Job Roles in Offshore Wind (2017) Green Port Hull pp17-39

²³ Offshore Wind Skills Intelligence Report (May 2022) Offshore Wind Council p21-p23

²⁴ See Appendix 6 for an indication of companies based in Cumbria connected to OSW

²⁵ <https://thedatacity.com/>



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Because Cumbria is already established as a mature offshore wind producer, Furness College and Hull are the two providers of apprenticeships for Orsted in the UK. Potentially this could bring more international apprentices or CPD courses to the area looking at working with experienced operators. There are numerous transferable skills trainings already in place, for example Lakes College already delivers SCADA training at degree level.

Manufacturers of high-tech low volume goods essential for the offshore wind sector are already well established (Siemens Subsea²⁶ at Ulverston for example with whom the new University of Cumbria Furness Campus is currently developing training solutions) although this expertise is not always recognised nationally²⁷. SMEs can work within the O&M if they have the right certification (from manufacturers or required by main contractors)²⁸.

There is also going to be a need to recycle / repurpose or decommission parts of the offshore wind infrastructure and there are numerous firms across West Cumbria who already work with nuclear decommissioning. Part of this process could be creating a blade recycling plant at the Port of Workington.

Cumbria already has two supply chains supporting two major engineering sites (BAe Systems and Sellafield) and servicing the offshore wind sector gives firms in these two supply chains an opportunity to diversify their offer which makes all the supply chains financially more sustainable (as income doesn't stop if demand in one of their markets slows down).²⁹

Cumbria is developing a base for expertise in the offshore wind sector (Furness College work with ORSTED) and for delivering modular leadership and management development for the engineering sector. As this develops it will create opportunities in further and higher education and will attract younger people to Cumbria to develop their engineering skills and work in the offshore wind sector.³⁰

3.0 What would this mean in terms of numbers of staff and with what specific skills, over what timescales and in what locations.

3.1 Growing importance offshore wind

The shift to green energy³¹ is creating a raft of new opportunities³² recognised by various Cumbrian organisations³³ Various bodies have examined the impact of offshore windfarms on their location³⁴ including North East Scotland³⁵, Massachusetts³⁶, Maine³⁷ and the USA³⁸ where they plan to produce 30GW from offshore wind³⁹. The importance of OSW to the UK is demonstrated by the formation of the Offshore Wind Council⁴⁰

²⁶ [Siemens Subsea - Choose Ulverston](https://www.scottishrenewables.com/publications/522-floating-wind-the-uk-industry-ambition) and <https://www.scottishrenewables.com/publications/522-floating-wind-the-uk-industry-ambition> p6

²⁷ [Centre-for-Cities-At-the-frontier-The-geography-of-the-UKs-new-economy-December-2022.pdf \(centreforcities.org\)](https://www.centreforcities.org/publications/2022/12/centreforcities-at-the-frontier-the-geography-of-the-uks-new-economy-december-2022.pdf) p19 doesn't recognise any town in Cumbria as part of the 'new economy'

²⁸ From interview with SME

²⁹ From interviews with various stakeholders

³⁰ From interviews with stakeholders

³¹ 2050 CUMBRIA BALANCED SCENARIO A VIEW ON THE REGION'S FULLY DECARBONISED LOCAL ENERGY SYSTEM (JUNE 2022) and Investing in climate positive Cumbria (Nov 21) Green investment plan Cumbria

³² Skills development and inclusivity for clean energy transitions (Sep 2022) International Energy Agency and [Green Jobs and Skills Analysis \(heylep.com\)](https://www.heylep.com)

³³ Green Jobs Metrics (Blue Mirror Insights) and Cumbria Renewable Energy Capacity and Deployment Study Final report to Cumbria County Council (August 2011) Page 160

³⁴ FUTURE OF WIND Deployment, investment, technology, grid integration and socio-economic aspects (2019) IRENA

³⁵ MAKING THE SWITCH NEW ENERGY | NEW JOBS | NEW ERA (May 2022) Robert Gordon University

³⁶ The State of Offshore Wind in Massachusetts (2021) REPORT AND RECOMMENDATIONS REPRESENTATIVE JEFFREY ROY – CHAIR, JOINT COMMITTEE ON TELECOMMUNICATIONS, UTILITIES, AND ENERGY

³⁷ 2022 Maine Offshore Wind Talent Analysis (May 2022) BW RESEARCH REPORT TO Maine Governors Energy Office and Maine Offshore Wind Roadmap

³⁸ U.S. Offshore Wind Workforce Assessment Jeremy Stefek, Chloe Constant, Caitlyn Clark, Heidi Tinneland, Corrie Christol, and Ruth Baranowski National Renewable Energy Laboratory (oct 22)

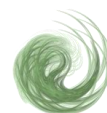
³⁹ A Supply Chain Road Map for Offshore Wind Energy in the United States Matt Shields,1 Jeremy Stefek,1 Frank Oteri,1 Matilda Kreider,1 Elizabeth Gill,1 Sabina Maniak,1 Ross Gould,2 Courtney Malvik,2 Sam Tirone,2 and Eric Hines

⁴⁰ <https://www.owic.org.uk/>



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which brings together industry, policymakers and stakeholders to shape the industry, and work collaboratively to achieve the OSW ambitions for 2030 and beyond.



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3.2 Developing opportunities for the offshore wind sector.

The offshore wind sector is constantly innovating its technologies and systems⁴¹In the future this will mean developing connectivity from the turbines and storage or surplus power⁴² and the potential for developing clustering of hybrid green technologies⁴³

Two recent USA reports looked at the workforce and the supply chain⁴⁴suggest that in the USA to hit their deadlines the offshore windfarm sector will be forced to bring on stream facilities that in many cases would not happen as there are bottlenecks in the supply chain. This means opportunities for Tier 2 and 3 suppliers rather than the Tier 1 making blades, nacelles etc. This could be the opportunity for some businesses in Cumbria. The USA workforce report goes into some detail around roles and the supply chain one goes into assessing the market opportunity for supplier jobs at State level (page 77 and Table 10 for a list of the components). It is also suggested that another bottleneck is skills and the need to train up people for Tier 2 and 3 suppliers. Again, this might be the opportunity for Cumbria.

3.3 Approx numbers of staff

Additional numbers required for new Morgan and Mona and Morecambe fields.

Renewable UK states that currently OSW produces 86GW of power employing 19,600 directly and 11,500 indirectly⁴⁵, this approximates to 228 direct jobs per GW and a further 134 indirect jobs per GW. A report for Maine OSW gave a percentage share of employment for each project phase.⁴⁶ This would suggest that the new developments producing 3.48 GW would create **793 direct jobs** (broken down in Table 3) and a further **465 indirect jobs** which could be part of local ancillary services (warehousing, cleaning, security etc) and national support services (training, research, developing specialist manufacturing etc.). Added to the approximate 500 current Cumbrian jobs (2.3) this suggests around 1750 jobs connected to OSW

Table 3 Direct Jobs created for Morgan and Mona and Morecambe Offshore Assume Morgan and Mona will eventually produce 3GW of energy and Morecambe Offshore will produce 480MW⁴⁷

Project Phase	Time Horizon	%of jobs in the direct workforce	Jobs created for Morgan & Mona at 3GW	Jobs created Morecambe OSW at 480MW	Total Direct Jobs
Planning & Development	Immediate	15	103	16	119
Manufacturing & Assembly	Short-Term	7	48	8	56
Construction & Installation	Long-Term	41	280	45	325
Operations & Maintenance	Long-Term	17	116	19	135
Support Services*	Throughout Project	20	137	22	159
Total		100	684	109	793

*Including transportation, training, research, and consulting—account for the final 20 percent of estimated direct U.S. workforce additions to arise from an expanded OSW market. These services occur during all phases, with involvement lasting months or years depending upon

⁴¹ FUTURE OF WIND Deployment, investment, technology, grid integration and socio-economic aspects (2019) IRENA (p54-55)

⁴² FUTURE OF WIND Deployment, investment, technology, grid integration and socio-economic aspects (2019) IRENA (p65)

⁴³ FUTURE OF WIND Deployment, investment, technology, grid integration and socio-economic aspects (2019) IRENA (p74)

⁴⁴U.S. Offshore Wind Workforce Assessment Jeremy Stefek, Chloe Constant, Caitlyn Clark, Heidi Tennesand, Corrie Christol, and Ruth Baranowski National Renewable Energy Laboratory (oct 22) and A Supply Chain Road Map for Offshore Wind Energy in the United States Matt Shields, Jeremy Stefek, Frank Oteri, Matilda Kreider, Elizabeth Gill, Sabina Maniak, Ross Gould, Courtney Malvik, Sam Tirone, and Eric Hines

⁴⁵ [New report shows jobs in UK offshore wind industry to grow to 100,000 - RenewableUK](#)

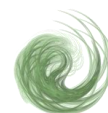
⁴⁶ p9 Maine Offshore Wind Talent Analysis 2022 see Appendix 3

⁴⁷ [bp and EnBW announce Morgan and Mona offshore wind projects in the Irish Sea, launch supplier registration portal | News and insights | Home](#)



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the project. The database currently identifies 38 occupations within this phase, including meteorologists, vessel mechanics, lawyers, and policy experts.



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3.4 Time frame development of Morgan & Mona and Morecambe and decommissioning of existing sites (and blade recycling)

Planning and development period will last until 2027⁴⁸ with first grid connection for power export commissioning of offshore substations by 2028 and an expected start of 2029 (Commercial Operation Date (COD)). If we use the timetable suggested in the Job Roles in Offshore Wind,⁴⁹ then the job roles will be required

- Planning and development (Development and project management) takes place evenly across the 6 years prior to COD (2024-2029)
- Manufacturing & Assembly (Part of Balance of Plant) from two years before to year of COD (2027-2029)
- Construction and Installation (Part of Balance of Plant & Installation and commissioning) from two years before to year of COD (2027-2029)
- Operations & Maintenance from COD for 25 years (2029-2054)

Table 4 assumes Cumbria may have some specialist firms who can support the national OSW sector with ‘planning and development’ and ‘manufacturing and assembly’ and some local firms who may be subcontracted with ‘construction and installation’ for Morgan & Mona. It also assumes that Morecambe OSW will develop in the same time frame. Then because of its location Cumbria could gain the bulk of the jobs in ‘operations and maintenance’ and ‘support services’. Cumbria should also benefit from a share of the 465 indirect jobs linked to all stages of development of these fields.

Table 4 Timetable for jobs with Morgan and Mona and Morecambe

		2024	2025	2026	2027	2028	2029	2030-2054
As part of national supply chain	Planning & Development	share of 119 direct jobs						
	Manufacturing & Assembly				share of 56 direct jobs			
Sub contracted	Construction & Installation				share of 325 direct jobs			
Main local jobs provider	Operations & Maintenance						most of direct 135 jobs	
	Support Services	most of 159 direct jobs						

⁴⁸ [Morgan and Mona - EnBW bp \(enbw-bp.com\)](https://www.enbw-bp.com)

⁴⁹ Job roles in offshore wind (2017) regional Growth Fund Green Port Hull (BVG Associates)



4.0 What does that then mean in terms of detailed skills provision requirements (qualifications, curriculum, numbers, locations)

So, for the new Morgan & Mona and Morecambe fields. Cumbria will have a serious opportunity to produce 135 skilled operations and maintenance roles for 25 years from 2029 and 159 support service roles starting from now until 2054. It is likely that local subcontractors may need some skilled construction and installation roles from 2027 to 2029. Cumbria will also share some of the 465 indirect jobs and has 500 people already employed in the OSW sector.

Ongoing, those Cumbrian firms that supply the national and international OSW supply chain with either high value low volume parts or specialist knowledge will also require a flow of specialist skills as they expand into their market.

There is also an opportunity to develop decommissioning / reconditioning skills for our older offshore wind fields.

4.1 The training Requirement Triangle

Engineering is about adapting the knowledge skills to the behavior of the industry and the behavior is created by the environment in which the industry operates. So, nuclear engineering is engineering working in a nuclear environment, offshore wind is engineering in an offshore wind environment (for example both need SCADA knowledge and skills (Supervisory Control and Data Acquisition)). Both have harsh conditions influenced by the sector. The expertise in an engineering sector comes from knowing what is required and what needs to be compliant. Real expertise's is built by education providers and end users collaborating to create CPDs for their staff along with equipment manufacturers and material suppliers. To get the best training support, organisations need to support colleges/universities/training providers by giving them access to their expertise and colleges need to provide courses that give the students the skills they need to meet the requirement of the job and remain compliant with the regulations needed to work within the business sector. To be sustainable, this must be cost effective for all parties.⁵⁰

In terms of education and training delivery smaller firms may prefer focus on online training that takes up less travel and time (and possibly protects their staff from poaching) and larger firms may prefer focus on face to face that allows cohorts from their individual firms to interact with each other.⁵¹

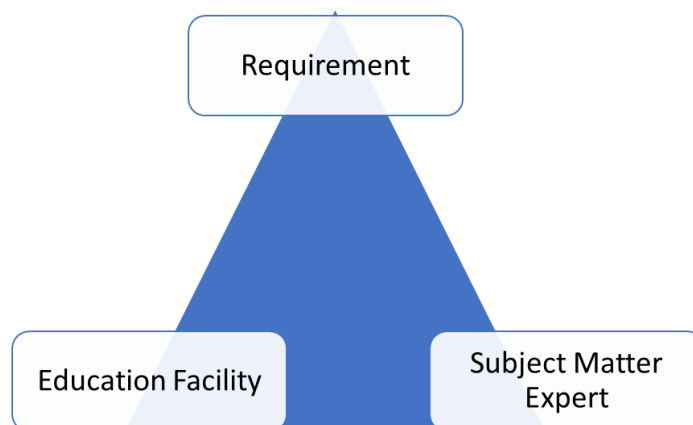


Figure 1 The training requirement triangle

4.2 Higher skills UoC Leadership and management skills

University of Cumbria has experience in delivering traditional MBAs online and remotely with the Robert Kennedy College. It is going to deliver undergraduate degrees for Bae focusing on high tech low volume

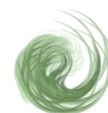
⁵⁰ Interview with college

⁵¹ Interview with stakeholder



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engineering and computer architecture or systems integration.⁵² It is now developing a modular suite of higher education leadership and management programmes that can lead to an executive MBA. There is a particular focus on the needs of engineers already been developed with local employers and they would be happy to include others in these developments.⁵³ Colleges also deliver higher level engineering skills such as SCADA.⁵⁴ It would be ideal if local colleges and university could gain some national support in developing offshore wind skills like that offered by Scotland.⁵⁵



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4.3 Entry skills Furness and Lakes College

The colleges work closely with local employers to develop and deliver engineering apprenticeships. They also deliver a series of engineering qualifications for school leavers. They will do this for the growing offshore sector if the courses make financial sense.⁵⁶

4.4 Pre entry skills

West Cumbria and Furness areas have a pool of long term unemployed⁵⁷ who could fulfil the entry level roles required for a growing sector like offshore wind⁵⁸. There are two trigger points that could encourage the move to employment:

- Young males with a new baby on the way who want a better life for their child (window of opportunity is from pregnancy to the first birthday of the baby).
- Young mothers whose child has entered secondary school and now want me time (these mothers have developed many transferable skills as parents: time management, logistics, budgeting , conflict management)

Cumbria also has an immigration of retirees who may want to give back some of their skills which supports the needs of the 'training requirement triangle', The CfLP is already working with retirees⁵⁹.

There are support programs out there⁶⁰ but they are long term solutions that focus on correcting the long-term unemployment problem.

4.5 Detailed skills provision

Offered below is an indication of the types of occupations and the skills required by the expanding Cumbrian OSW sector.

4.5.1 Morgan & Mona and Morecambe Fields Table 5 is based on a 2017 report and is for guidance only.

Table 5 Operations and Maintenance and Support Services (Source : Job roles in offshore wind (2017) regional Growth fund Green Port Hull (BVG Associates))

Role	Qualification Level	Salary (2017)
Windfarm Operations		
<i>Operations</i>		
Operations and maintenance manager	degree	£55,000-£65,000
Asset integrity manager	degree	£40,000-£50,000
Operations controller	degree	£35,000-£45,000
Control room technician	degree	£25,000-£35,000

⁵² Interview with UoC

⁵³ Interviews with various UoC staff

⁵⁴ Interviews with stakeholders

⁵⁵ FUTURE OF WIND Deployment, investment, technology, grid integration and socio-economic aspects (2019) IRENA (p82)

⁵⁶ Interviews with various stakeholders

⁵⁷ There are programs for the unemployed such as Copeland Skills and Enterprise Program already running

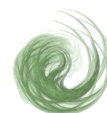
⁵⁸ Interview with stakeholder

⁵⁹ [Sense of Purpose - Centre for Leadership Performance \(cforlp.org.uk\)](http://SenseofPurpose.org.uk)

⁶⁰ See Copeland Skills and Enterprise Program



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<i>Windfarm supervisory control and data acquisition and network communications</i>		
SCADA software developer	degree	£30,000-£50,000
SCADA technician	HNC	£25,000-£50,000
Communication network technician	HNC	£25,000-£45,000
<i>Cross cutting : Communications</i>		
Electronic or mechanical design engineer	degree	£20,000-£45,000
Turbine Maintenance		
<i>Blade inspection and repair</i>		
Rope access and blades repair manager	IRATA Level 3	£50,000-£70,000
Rope access and blade repair supervisor	IRATA Level 3	£30,000-£50,000
Rope access and blade repair technician	IRATA Level 2	£25,000-£35,000
<i>Turbine electrical and mechanical maintenance</i>		
Site supervisor	HND/degree	£30,000-£50,000
Wind turbine technician	HND/degree	£20,000-£40,000
<i>Statutory inspections</i>		
Crain and rigging inspector	Ind certs/ HND	£25,000-£35,000
Fire safety technician	Ind certs	£20,000-£30,000
Lift Technician (HNC/HND)	Ind cert/HND	£20,000-£35,000
Structural inspection and maintenance		
<i>Foundation inspection, repair and maintenance</i>		
Diver	diver qual/HSE	£60,000-£90,000
Diver supervisor	diver qual/HSE	£50,000-£75,000
Diver tender	diver qual/HSE	£30,000-£40,000
<i>Foundation Cleaning</i>		
Technical supervisor	IOSH Cert	£30,000-£50,000
Team leader	IOSH Cert	£25,000-£40,000
Cleaning operative	IOSH Cert	£20,000-£30,000
<i>Cross cutting Port and harbour services</i>		
Dock master	dock master qual	£45,000-£55,000
Dock gateman	cons skill qual	£25,000-£40,000
Line handler	none	£20,000-£25,000
Maintenance and service logistics		
<i>Marine coordination</i>		
Marine coordinator	none	£40,000-£50,000
Ships agent	none	£15,000-£20,000
<i>Warehouse and spares management</i>		
Warehouse manager	CILT level 3	£20,000-£40,000
Warehouse operative	none	£15,000-£20,000
<i>Vessel operations and maintenance</i>		
Vessel superintendent (operations)	degree	£35,000-£45,000
Crew manager (operations)	degree	£30,000-£40,000
Field service engineer (maintenance)	degree	£20,000-£35,000



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4.5.2 Subcontracting for Construction & Installation Any firms based in Cumbria that have a specialism in the following may be able to get contracts during the construction and installation stage:

Turbine tower supply:

- Ladders
- Coating
- Health and safety

Foundation supply

- Platforms
- Secondary steel
- Training services

Substation supply

- Architectural steel
- Navigation lights
- Cable route systems

Turbine and foundation installation

- Mobilisation
- Crewing services
- Vessel maintenance

Cable installation

- Termination and testing
- Remotely operated vehicle services
- Cable protection systems

Installation support

- Unexploded ordnance surveys and removal
- Guard vessels
- Oil spill clean-up

4.5.3 Cumbrian firms as Part of supply chain for global OSW There are several firms with bases in Cumbria already involved in the OSW supply chain (including Siemens). Their focus is on high value low volume products. Cumbrian consultants with experience in the energy sector (including environmental impact) may also be able to gain contracts in the OSW supply chain for both:

- Planning and development
- Manufacturing & assembly

4.5.4 Decommissioning/repurposing older offshore wind fields. The original Cumbrian OSW will be becoming to the end of their initial expected working life, and this gives Cumbrian based firms an opportunity to create a specialism in this field that will be needed globally.

5.0 How does that fit with what is available now, what do we need to change/develop.

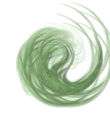
Furness and Lakes Colleges both have very strong links with engineering and construction sectors through working with the major employers of BAe Systems and Sellafield Sites this includes developing transferable skills such as Supervisory Control and Data Acquisition (SCADA) at degree level⁶¹. The University of Cumbria is a relatively new player in the engineering sector BUT its ambition for the Furness site fits directly with the needs of the offshore wind sector and the appointment of Jill Stewart as Director Institute of Engineering, Computing and Advanced Manufacturing brings a wealth of experience in delivering the right type of support. The university has also built up a national reputation for delivering higher apprenticeships including those on project management (building on work with Sellafield). Currently the university is developing a suite of modular training

⁶¹ Interview with college



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solutions focused on leadership and management that can lead to an executive MBA, these could be ideal for engineers who want to progress within the offshore wind sector.



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Young people do leave the county to complete a degree and tend to find employment near to their chosen university. This is not unique to Cumbria. The opportunity for Cumbria is to attract young people to the county who want to complete higher apprenticeships/ degrees linked directly to employment in the county's engineering sector (including offshore wind).⁶² This could be achieved by firms collaboratively attracting prospective employees to the county and then competing for them once they are part of Cumbria's business ecosystem (similar to the old 'Choose Cumbria' partnership)⁶³

At the same time, the Cumbrian engineering sector is mature with a significant number of its staff approaching retirement which is and will create further competition for skilled engineers.⁶⁴ Signs of the impact of this are some smaller firms owner/managers covering parts of the shop floor supervision/work due to staff shortages.⁶⁵ Sellafield and BAe firms vigorously recruit which can add to pressure on smaller firms, as part compensation both firms do invest in community projects which in turn create new opportunities and attract more skills to Cumbria, it can be assumed that this will also be the case for the larger offshore windfarm operators.⁶⁶

There is already a cluster of electrical firms around Morecambe Bay⁶⁷ and they have developed a skills support programme available to Cumbrian firms with a LA Postcode⁶⁸. Working alongside this cluster RTC North would be willing to help Cumbrian firms explore the opportunities in offshore wind⁶⁹

It is inherently difficult to predict skills shortages. Using the methodology outlined in the 2022 Maine Offshore Wind Talent Analysis and limited access to Lightcast occupational analysis we have identified the following broad occupations that may be under supplied in Cumbria by 2031, this is without the additional pressure from OSW expansion:

- Building and Civil Engineering Technicians
- Carpenters and Joiners
- Chartered Surveyors
- Civil Engineers
- Conservation Professionals
- Construction and Building Trades Supervisors
- Construction Operatives n.e.c.
- Construction Project Managers and Related Professionals
- Electricians and Electrical Fitters
- Electronics Engineers
- Elementary Construction Occupations
- Environmental Health Professionals
- Health and Safety Officers
- Human Resource Managers and Directors
- Human Resources Administrative Occupations
- Human Resources and Industrial Relations Officers
- Inspectors of Standards and Regulations
- Management Consultants and Business Analysts

⁶² From interview with stakeholder

⁶³ From interviews with stakeholder

⁶⁴ From interviews with stakeholders

⁶⁵ From interview with stakeholder

⁶⁶ Community Benefits and UK Offshore Wind Farms: evolving convergence in a divergent practice John Glasson Impact Assessment Unit, School of Built Environment, Oxford Brookes University

⁶⁷ <https://electechinnovationcluster.co.uk/>

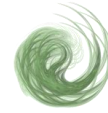
⁶⁸ [Our Skills Bootcamps in Electech \(Electronics\) - Tech Lancaster \(tech-lancaster.org.uk\)](https://www.tech-lancaster.org.uk/)

⁶⁹ [RTC North :: Home page](https://www.rtcnorth.co.uk/)



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- Managers and Directors in Transport and Distribution
- Plumbers and Heating and Ventilating Engineers
- Production and Process Engineers
- Production Managers and Directors in Construction
- Quality Assurance and Regulatory Professionals
- Quality Assurance Technicians
- Quantity Surveyors
- Science, Engineering and Production Technicians n.e.c.
- Ship and Hovercraft Officers
- Skilled Metal, Electrical and Electronic Trades Supervisors
- Steel Erectors
- Vocational and Industrial Trainers and Instructors



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An essential part of this process is to make young people from primary school age aware of the opportunities within the sector. The 2022 Maine Offshore Wind Talent Analysis offers a series of recommendations that should be considered to attract youngsters towards the OSW sector (see appendix 4)

6.0 Conclusion

6.1 Opportunities

6.1.1 Operations and maintenance Operations & Maintenance opportunities will increase as the windfarm output increases and will be linked directly to the location of the ports servicing the windfarms.

6.1.2 Think global: Linked to skills. Cumbria already has a manufacturing base that supplies high value low volume items to the OSW manufacturers. Supporting the skills needs of these firms will have an incremental effect on the number of people employed within the offshore wind farms sector supply chain. A prime example is Siemens Subsea at Ulverston need a pool of people that understand subsea connectivity and so will the offshore wind sector. (UoC starting to develop relationship with Siemens to support this this). Furness college is also at the front of providing apprentices for OSW with its established links with ORSTED.

6.1.3 Act local: Linked to location. There are numerous offshore wind farms that eventually will need decommissioned in difficult conditions which requires a pool of talent that Sellafield already has.

Blades will need recycled/ replaced⁷⁰. Irish Sea blades will probably need this at a port on Irish Sea. This offers an opportunity for Barrow or Workington in the mid future. Decommissioning skills developed could also be transferable to the general decommissioning of old offshore windfarms.

6.1.4 Developing transferable skills Cumbria already produces brilliant engineers with many transferable skills (such as SCADA). The university is looking to develop leadership and management skills for engineers as they progress in their career.

6.1.5 Established engineering infrastructure Cumbria has two major engineering clusters supplying Sellafield and BAe with strong links to power supply, electrical engineering and IT. Cumbria has colleges, training providers and a University that have or are building strong links with our engineering sector. This coupled with the huge pool of talent and experience built up from well established OSW coupled with globally recognised skills in decommissioning power supplies puts Cumbria in a very strong position to support the growth of OSW.

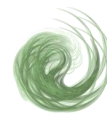
6.2 The need to educate.

6.2.1 Raising profile of Engineering IT and OSW with youngsters. Many of the interviewees agreed that we need to raise the profile of engineering with our Cumbrian School Children. There appears to be a willingness of our skills and training providers to be more involved with schools to do this.

⁷⁰ [Home \(project-cetec.dk\)](http://Home.project-cetec.dk)



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6.2.2 Protecting the Cumbrian talent pool. All regions will be competing for engineering and IT professionals. Highlighting and developing Cumbria's expertise in these areas and shouting about it to a national and international audience will ensure the financial sustainability of established firms (such as BAE and Sellafield).

By attracting new talent to the area to train and work for OSW and similar sectors Cumbria will start to reverse the migration of young workers.

6.3 Recommendations for future work

6.3.1 Deeper dive into current numbers employed in the Cumbrian Green Energy Sector. Working alongside officers from the CLEP and the two new Cumberland and Westmorland & Furness Councils gather data from businesses based in 'Cumbria' to get a more definitive number of employees and businesses that would support the growth of our Green Energy Sector. We could develop an intelligence hub for new and emerging sectors and the skills implications and requirements. This could be modelled on work undertaken in other UK regions and Nations (e.g. Wales and North East Scotland) and produce an annual prospectus and status report for Cumbria. The purpose of which would be to inform local actions but also the broader careers needs and help to attract candidates to move to Cumbria.

6.3.2 Capture the 'vision for green skills' of Cumbrian HE, FE and training providers. Thomas Jardine & Co could deliver this at an away day focused on a Business Model Canvas open to all our Cumbrian Skills Providers.

6.3.3 Repeat the report for other Cumbrian green energy sectors.

6.3.4 Explore the reinforcing strengths of the UK Government's five priority sectors (digital and technology sectors, life sciences, creative industries, green industries, and advanced manufacturing) to drive the green investment potential of Cumbria. It is clear from the work completed to-date, that digital is a major component of both the green industries and advanced manufacturing, and should be viewed as one of the three pillars on which to build sustainable, high-quality jobs in Cumbria. One of the three pillars can't thrive without the other two. The purpose of the work would be to identify the strengths of Cumbria across green, digital, and advanced manufacturing, and those actions that would make it even more successful.

Appendix

Appendix 1 contributors

15 unstructured interviews with:

- BECBC
- Cumbria County Council
- Cumbria LEP
- Cumbria LSIP
- Data City
- Klosinski Economic Development Consultants
- Lakes College
- Lancashire Chambers LSIP
- RTC North
- Sellafield Sites
- SME Green Energy Business
- University of Cumbria

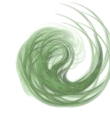
Appendix 2 Methodology

- Literature review collating similar research projects from UK and USA.
- Adaption of research projects identified to create potential number of staff needed and their required skills level.



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- Formulation of tables using assumptions made in research projects and data available...huge acknowledgement to data city and blue mirror insights.
- Sense checking of findings from research using a series of open interviews with key stakeholders in and around Cumbria.
- Weekly checking between literature and interviews to identify any potential gaps in the project.
- Sense checking of final report across the research team.
- Submit working draft report to Chambers and CLEP to sense check before completing final brief report.



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Appendix 3 OSW Occupation by Project phase

Table OSW Occupations by Project Phase (Table p10, percentage share of jobs p9 Maine Offshore Wind Talent Analysis 2022)

Project Phase	Time Horizon	Number of Occupations in each category	Percentage of jobs in the direct workforce
Planning & Development	Immediate	46	15
Manufacturing & Assembly	Short-Term	76	7
Construction & Installation	Long-Term	70	41
Operations & Maintenance (O&M)	Long-Term	61	17
Support Services*	Throughout Project	38	20

* including transportation, training, research, and consulting—account for the final 20 percent of estimated direct U.S. workforce additions to arise from an expanded OSW market. These services occur during all phases, with involvement lasting months or years depending upon the project. The database currently identifies 38 occupations within this phase, including meteorologists, vessel mechanics, lawyers, and policy experts

See also their appendix E that highlights the severe and moderate shortages Maine could be facing

1300 jobs in 2020 for

Appendix 4 (Maine Offshore Wind Talent Analysis (2022) pp35-36

Overall Findings for Improving Pathways into K-12

These findings are based on the combined ratings from the education and training provider convening and the employer and industry association convening.

Strategic Efforts

- Coordinate high school, college student, and educator teams visit OSW facilities in other states and share stories at Maine outreach events
- Develop curriculum for HS and trade schools that might foster interest in OSW certs/careers
- Create summer programs for HS students for hands-on experiences
- Give tours or field trips of existing wind farms to inspire
- Create mobile hands-on training and education modules to take to schools
- Engage with Community-Based Organizations (CBOs) and immigrant leaders to diversify the workforce
- Create a teacher training program to design OSW related curriculum linked to Maine's learning standards
- After school club or team (robotics club model)
- Input to K - 8 STEM programs using OSW as a reason to do STEM

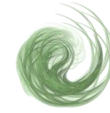
Low-Hanging Fruit

- Create a special award or incentives for OSW related project awards at Maine's STEM competitions
- Develop video, websites, social media content to demonstrate the breadth and range of OSW jobs.
- Career fairs and guest talks



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- Leverage community college and other credentialing
- ACE program and other after school STEM groups implementing OW
- Work with local community colleges in enhancing OSW certs/careers.



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Education and Training Provider Convening Findings

The education and training providers group voted to focus on engaging K-12 students and addressing workforce housing challenges.

ENGAGING K-12 STUDENTS

Most important (in descending order):

- Develop curriculum for HS and trade schools that might foster interest in OSW certs/careers
- Engage with Community-Based Organizations (CBOs) and immigrant leaders to diversify the workforce
- Create summer programs for HS students for hands-on experiences
- Leverage existing community college and other credentialing by adding OSW-specific modules or curriculum to existing coursework.
- Coordinate high school, college student, and educator teams visit OSW facilities in other states and share stories at Maine outreach events
- ACE program and other after school STEM groups implementing OW
- Create mobile hands on training and education modules to take to schools
- Work with local community colleges in enhancing awareness of OSW certs/careers.
- Internship opportunities with research lab
- Input OSW material into K - 8 STEM programs. The idea is to use OSW as a reason to do STEM.
- Create a teacher training program to design OSW related curriculum linked to Maine's learning standards
- Create a special award or incentives for OSW related project awards at Maine's STEM competitions
- Create an after-school club or team (robotics club model)
- Demonstrations at wind-testing facility at UMaine
- Look for ways to create opportunities during non-traditional instructional time to engage students.
- Develop video, websites, social media content to demonstrate the breadth and range of OSW jobs.
- Career fairs and guest talks

Strategic Efforts

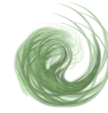
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- Create an after-school club or team (robotics club model)

Low-Hanging Fruit

- Create summer programs for HS students for hands-on experiences
- Leverage existing community college and other credentialing by adding OSW-specific modules or curriculum to existing coursework.
- ACE program and other after school STEM groups implementing OW
- Work with local community colleges in enhancing awareness of OSW certs/careers.
- Internship opportunities with research lab
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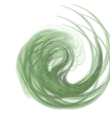
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Appendix 5 *Planning Roles extracted from Job roles in offshore wind (2017) regional Growth fund Green Port Hull (BVG Associates)*

Role	Qualification	Salary (2017)
Port Studies <i>Local location not needed Cover environmental, economic and engineering analysis</i>		
Project Director	Degree Level	£55,000-£70,000
Project Manager	Degree Level	£40,000-£50,000
Principal Consultant	Degree Level	£30,000-£35,000
Consultant	Degree Level	£20,000-£28,000
Geotechnical and geophysical surveys <i>Local location not needed include bathymetric, cable route and unexploded ordnance (UXO) surveys.</i>		
Oceanographer	Degree Level	£20,000-£40,000
Hydrographer	Degree Level	£20,000-£40,000
Geophysicist	Degree Level	£20,000-£40,000
Offshore processor	Degree Level	£20,000-£40,000
Onshore processor	Degree Level	£20,000-£40,000
Wildlife surveys <i>Surveys are undertaken mainly from survey vessels, with some bird surveys using aircraft</i>		
Marine mammal observer	Degree/HND Level plus one day marine mammal observation qual.	£20,000-£40,000
Marine ecologist	Degree Level	£20,000-£40,000



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Appendix 6 Indication of Cumbrian companies currently supporting OSW

Business with base in Cumbria	Location	Source/ notes
EDS HV GROUP LIMITED	FISHER HOUSE, PO BOX 4, LA14 1HR	Datacity
EDS HV MANAGEMENT LIMITED	FISHER HOUSE PO BOX 4, MICHAELSON ROAD, LA14 1HR	Datacity
ELECTRICITY DISTRIBUTION SERVICES LIMITED	FISHER HOUSE, PO BOX 4, LA14 1HR	Datacity
FURMANITE 1986	FURMAN HOUSE, SHAP ROAD, LA9 6RU	Datacity
FURMANITE INTERNATIONAL FINANCE LIMITED	FURMAN HOUSE, SHAP ROAD, KENDAL, LA9 6RU	Datacity
FURMANITE LIMITED	FURMAN HOUSE, SHAP ROAD, LA9 6RU	Datacity
POWER SYSTEMS (E&C) LIMITED	8 IVY CRESCENT, BURNESIDE, KENDAL, LA9 6QQ	Datacity
RTOS 360 LIMITED	FISHER HOUSE, PO BOX 4, LA14 1HR	Datacity
SCANTECH OFFSHORE LIMITED	FISHER HOUSE, P O BOX 4, LA14 1HR	Datacity
SKY FUTURES PARTNERS LIMITED	57-59 ELMSFIELD PARK, HOLME, LA6 1RJ	Datacity
TEAM INDUSTRIAL SERVICES (UK) LIMITED	FURMAN HOUSE, SHAP ROAD, LA9 6RU	Datacity
TEAM INDUSTRIAL SERVICES INSPECTION LIMITED	FURMAN HOUSE, SHAP ROAD, LA9 6RU	Datacity
TEAM VALVE AND ROTATING SERVICES LIMITED	FURMAN HOUSE, SHAP ROAD, LA9 6RU	Datacity
TIS UK LIMITED LIMITED	FURMAN HOUSE, SHAP ROAD, LA9 6RU	Datacity
WIND INSPECTIONS LIMITED	OXFORD CHAMBERS, NEW OXFORD STREET, CA14 2LR	Datacity
WIND TURBINE INSPECTION LTD	25 BLACKMORE AVENUE, , UB1 3ES	Datacity
James Fisher and Sons plc	Barrow in Furness	<i>Serve energy, marine transport and defence sectors. Employ totally 2568 and have sales of \$680mn.</i>
Hi-Def Aerial Surveying	Workington	<i>part of BioConsult SH of Germany)</i>
ORSTED		
Siemens Subsea	Ulverston	
University of Cumbria	Barrow, Ambleside & Carlisle	
Furness College	Barrow	
Lakes College	Workington	
Other Cumbrian Colleges	Carlisle & Kendal	
Port of Workington	Workington	
MHI Vestas	Barrow	MHI Vestas Celebrates Inauguration of Walney Extension Offshore Wind Farm
WEST OF DUDDON SANDS OFFSHORE WINDFARM	Barrow	West of Duddon Sands Offshore Windfarm - ScottishPower Renewables
B B S Windturbines Ltd	Town End Farm Windscale CA20 1PS	Kompass
Vattenfall	Barrow	Ormonde Wind Farm - Vattenfall
EON	Workington, Cumbria, CA14 1BN	E.ON Offshore Wind Turbine Technician in Workington, Cumbria - Totaljobs
RES	Barrow	RES secures contract to maintain Walney wind farm In Cumbria (in-cumbria.com)
Millweld Ltd	Workington	Wind Turbines – Millweld Limited – Engineering Services (millweldengineering.co.uk)
Swire Energy Services (SES)	No location identified...	Swire Energy Services Scores UK Offshore Wind Farm Work for Ørsted Offshore Wind
Associated British Ports	Barrow	Associated British Ports Barrow (abports.co.uk)



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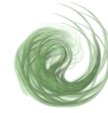
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