



Offshore Wind Energy, the Construction Sector View Challenges and Recommendations From Sector Insight

CEWales champions the construction, built environment industry intent to translate renewable sector opportunities, create efficiencies at scale and support the Welsh Government on its net zero drive which includes its recent target for electricity to be 100% renewable by 2035. Set against the background of the Well-Being of Future Generations Act, CEWales welcomes the [Net Zero Just Transitions Framework](#), [Future Wales: the National Plan 2024](#) and the upcoming [Infrastructure Wales Bill](#) which aims to streamline significant infrastructure projects within renewables such as offshore wind.

Offshore wind energy, is set to create an economic opportunity worth up to 92bn by 2040 for UK which offers an attractive option for cross-sector support. UK Gov. has announced establishing a new British Infrastructure Council with a revived Industrial Strategy Council, placed on a statutory footing. The new strategy will focus on where the UK can develop comparative advantage in crucial sectors like floating offshore wind and carbon capture and storage (CCS). With potential in the Celtic Sea including the [Celtic Freeport Vision](#), as well as CCS and hydrogen generation in the north and south of Wales, there are huge opportunities for Wales. As an example, FLOW presents a 1bn. economic opportunity in the next five years with the Welsh government signalling the importance to develop an [offshore wind industrial strategy](#). This intent is realised in the recent [Offshore wind, Industrial Growth Plan](#) launched in April 2024.

CEWales welcomes this setting of a shared vision as it takes note of the ongoing challenges of consenting, planning, grid connection issues, lack of pipeline visibility and clarity on return of investment within the offshore wind sector. Such issues, in turn can limit the extent to which the construction sector can effectively offer support as it impacts pipeline certainty and market confidence, connections across supply chains, awareness, innovation and capacity building. This is especially relevant as the construction sector requires early sight of the likely resources requirements (volumes & timing) for both port infrastructure and for foundation construction – construction material resource and supply plans for major projects. It therefore, further makes the case for a move towards industrialised construction identified in CEWales MMC Intelligence Report, to achieve an efficient, connected response and make the most of the incoming opportunities.

Importantly, CEWales acknowledges external market interest and the major role of private sector funding within the offshore wind sector and therefore suggests government to explore localised capability and awareness opportunities to better connect cross-sector efficiencies and bridge the gap such that local demand can be met with local supply. Successful alignment can also ensure efficiencies in technology trends and innovation in areas where the wider UK and Wales have cross-sector strengths as identified in [Catapults research](#) and shared through sector insight, such as the efficient re-use of wind turbine parts to enable circular economies as noted by [the Coalition for Wind Industry Circularity](#), use of on-land development (port space, worker housing, place-making), delivery mechanisms through Modern Methods of Construction, Digital Twins/BIM, Co-participatory innovation, and areas of automation and advanced materials which are understood to be key in driving forward offshore wind technologies. Currently innovation can only be undertaken in a fragmented approach limited to improvements in consenting challenges. A joined-up approach as identified in the [Innovation Focus Report 2023-2026](#), can also help re-shape the future of local construction skills whereby construction sector workers can plug the supply gap and achieve a just transition that

benefits Wales, net zero ambition whilst uplifting the local materials market on its drive to net zero carbon.

Ultimately, more needs to be done to maximise the potential for offshore wind in the Welsh Construction Sector. CEWales supports this industry intent and in its' role as conduit between Welsh Government and industry, is well-positioned to facilitate cross-sector working groups and support ongoing work in this area such as the [ORE Catapult F4OR Programme](#) and [Innovation Hub, Marine Energy Wales Celtic Sea Developer Alliance](#) and Floating Wind industrialisation task force, which is run by RenewableUK on behalf of BEIS. CEWales is already in discussions to host a joint roundtable with key industry players including; TATA, RenewableUK CYMRU and have already met with CELSA Steel, Opergy Net Zero, MPA and Supply Chain Sustainability School to explore supply chain collaboration. Together, CEWales aims to develop key recommendations and translate the offshore wind opportunity for the construction sector.

Sector Stakeholder Challenges

Pipeline certainty and confidence

Tier 1 and 2 businesses including supply chain manufacturers have noted the significant potential that offshore wind energy will bring. However, they identified that sector responses remain cautious due to several reasons related to challenges within the offshore wind sector around planning, consenting, licensing issues causing delays. The sector is yet to have a clear picture on requirements and related impact. Increased work in this area is not yet visible with most awaiting decisions from rounds with Crown Estate. For example, sector described limited construction activity even related to enabling infrastructure and pre-development, although noted, material supply is slowly starting. Uncertainties around the commitment to funding is influencing this, such as, regarding a secure pipeline of FLOW manufacturing/assembly. Further, sector requested more insight into what a Freeport Status might bring, especially acting as a cross-sector catalyst for place-based convening of decision-making and funding. SME's mentioned the need for pipeline certainty to build confidence and prepare connected supply chains with some describing no engagement with offshore wind infrastructure and no plans to become involved in the medium term choosing to monitor opportunities for entry if seen as profitable with a better than average rate of investment.

Timelines, Licensing and its' Connected Impact

Tier 1 and 2 businesses identified difficulties in planning for horizon opportunities due to the unknown nature of the timeline/timescales and wider licensing challenges found in the offshore wind sector. The delays have made it difficult for the construction sector to visualise demand and therefore prepare. However, the sector has noted renewed interest from UK government to fast track enabling environments and indicated their desire for Welsh Government support especially around awareness, visibility and capability roadmaps. Industry has acknowledged some ongoing bidding on offshore wind and the upcoming milestones in this area, in particular within Celtic Sea where securing sea bed leases with Crown Estate will kick start connected demand. For lower tier supply chain manufacturers and SME's, clarity on timescales was mentioned as integral to better prepare and manage lead in times.

Awareness, Cross-Sector Collaboration and Skills Gap

Tier 1s, 2's, supply chain organisations and SME's re-iterated the significant scale, pace of investment and delivery to meet 2050 net zero targets/UK energy targets. Industry research organisations provided insight that mobilisation required for the UK is enormous and beyond the worlds capability



at the moment as seen from several studies on [supply chain capabilities](#). A consolidated view of this using clear metrics is still missing and therefore awareness on its linked impact and translatable cross-sector opportunity not yet fully realised. For example, once seabed leases, environmental licenses and consenting in Wales kickstarts, offshore wind projects will develop at pace and require to be port ready. As offshore wind does not operate on 'just in time' delivery, it currently requires land space to place all components. There is currently no port in Wales that can accommodate this when seen through the full picture, the resulting delay will impact timescales and enhance lead in times. For example, some places, such as Port Talbot may have space available, but it is not yet connected in a way that is feasible, i.e. with surrounding infrastructure. Other linked challenges will be around needing to build housing for labour both temporary and long-term that may involve designing new neighbourhoods, connecting to existing communities and ensuring it is undertaken embedding the principles of the Well-Being of Future Generations Act- mindful of future resilience i.e. flood impact etc. Supply chain organisations mentioned that as the market develops, there will be a need to build facilities like warehouses, sheds, manufacturing facilities which are within the remit of the construction sector. It will be important to note this connected impact of offshore wind and what it will bring for the local areas and local economy such as increases in housing, schools, health facilities etc. Early cross-sector collaboration to identify areas for efficiency such as potential sites, supply pre-orders and design dependencies was mentioned as integral. Tier 1's outlined the importance of planning for wider placemaking outcomes as part of the evolving industrial transformation - not just roads and buildings, but also aspects like parks, community facilities, nature-based solutions, flood defence. Supply chain and SME's noted opportunity for cross-sector support in design, for example those designs that are repeatable at scale, using efficiencies from manufacturing and construction sector approaches, moving to modular components, potential for innovation on standardisation feeding into demand for floating wind. These can be explored with advanced manufacturing and composite manufacturing sectors. Full awareness of the challenge will enable greater connection between the sectors especially as the scale and resources needed will apply great pressure on both sectors and divert from each other - pressure on supply of materials and management for example.

From a skills perspective, the gap will only widen. Within the renewable sector, lots is being done to increase awareness through Marine Energy Wales, Developers themselves, WG, ORE Catapult. However, there will be a gap in skills due to uncertainty of timeline – organic growth will need to occur. The unknown nature of the timeline has made it difficult to plan staged labour/resource delivery from large companies shutting down. Due to shared dependencies, the impact of increased work in the renewables sector will influence the existing construction sector and lead to an increased need for similar skills (housing, buildings, road, grid). It will also influence the future construction sector offering the potential to transition to automation skills and [transfer from Oil and Gas Markets](#) for a just transition. Automation will be necessary to ensure the renewables sector remains competitive with foreign markets. This is an opportunity for the construction sector to bridge the gap and provide automation management skills. This is still positive, as there will be a need for labour to operate such machines. Hinkley Point C, Sizewell etc. are in discussion to manage their forecast transition to supplement their knowledge and workforce for offshore wind and construction + infrastructure sectors.

Innovation and Efficiency

Tier 1's, 2's and research organisations mentioned that innovation within the offshore wind sector depends as the designs are not yet finalised. For example, for the floating structures, material emphasis is on concrete but there is potential for it to be fully steel. Wales appears more prepared for concrete structures with re-enforced steel. Both approaches need to be in line with Wales Net Zero drive. The decision on this will impact which industry develops and types of innovation within it. Supply

chain material manufacturers have described offshore wind as a huge opportunity on enhancing the existing capability in Wales and developing a Welsh/UK supply chain supplying products made locally. However, this requires alignment of the sectors, to prepare the supply chain and make the most of the local opportunity which favours local industries, local skills and economy and has the added benefit of a smaller carbon footprint in comparison to international supply chain resources which will create the necessary competitive advantage. The potential to develop innovations at the current stage will need to be at a micro scale which offers significant potential for SME's to get involved as part of the supply chain. For companies within the construction sector, understanding the problems around funnel efficiency (sea bed lease, environmental licencing and consenting in Wales including grid efficiencies) is required with the root cause being consenting. Finding innovation within this area is important and the construction sector can help through localised innovations. For example, there is a requirement for a two year bird and mammal survey and currently no way to do at a regional scale. This can cause major delays and is therefore a huge opportunity area for data mapping at a regional scale which can reduce consenting delays.

Other solutions can range from shifting traditional design and construction to an engineer-procure-construct (EPC) project delivery model, innovation in climate technology, data analysis, land identification/characterisation surveys, [biodiversity drone mapping](#), feasibility assessments to design/delivery efficiencies of offshore wind components and onshore infrastructure requirements using digital twins, analytics & machine learning, MMC. These improve efficiency and lower costs associated with site development, installation, condition monitoring, decommissioning and more. Intervention examples include the use of Innovation Challenges such as [adapting Hywind](#), a platform for a turbines, to be more efficient and [PelaFlex](#). Others like the Strategic Innovation Funds to advance technology readiness for [implementation of Direct Current Circuit Breakers](#) integral to the development of energy capacity. Further examples provide innovative design responses such as [floating foundations](#), [Wind Catching Systems](#), [self-installing substations](#). A new generation of tools may include advanced ocean weather forecasting and robotic solutions.

Perception and appetite – Sector organisations described perception as an issue with fatigue in the workforce and supply chains around the opportunities of the offshore wind markets and their translation within the sector. SME's in the construction sector shared previous experiences with renewables as difficult to predict with investments in staff and operatives wound back from 2010 to 2024. This is an area that will benefit from increased pipeline visibility and confidence through a well-aligned cross-sector industrial strategy which ties in with a Wales Energy just transition plan, built from the [Just Transition to Net Zero Framework](#) similar to [Scotland's plan](#), to secure surrounding infrastructure and enable a joined up approach. Connected governmental leadership will improve appetite and set the stage for further efficiencies beyond offshore wind, such as in hydrogen and tidal for Wales.

Sector Stakeholder Recommendations

Key patterns were identified within stakeholder recommendations. These are shared below:

- Need for pipeline certainty and visibility as the catalyst to enable cross-sector efficiencies at scale and pace - Recommendation to improve the challenges within renewable sector around planning, consenting, grid connectivity felt cross-sector. In particular to create a clear road plan and action

plan for Wales to meet 100% renewable energy target and to provide clear policy direction under the Infrastructure (Wales) Bill in reference to [Renewables UK Recommendations](#). Further recommendation to buy risk through take or pay contracts, where companies build and invest in offshore wind, however if no take-up, government to underwrite risk. Due to the significant opportunities for parallel sector support (including automotive, manufacturing) a publicly funded cross-sector joint pipeline tracker could be useful to give full transparency and visibility for the entire supply chain, including SME's.

- Need for connected awareness and translating the offshore wind opportunity to the construction sector – Recommendation to move the construction sector towards industrialised construction linking with offsite industrialisation strategy. Once the overarching ambition is highlighted, need for mechanisms to monitor. Therefore, a further recommendation to organise joint, cross-sector delivery bodies comprising WG Departments, CEWales, Marine Energy, RenewablesUKCYMRU, Catapult and others. Such an expert working group can facilitate the transition, provide rapid advice and build local supply chains involving key cross-sector players. Setting an enabling environment for connected awareness will ensure connected demand is better planned for. Especially as such demand will have significant impact on land to not only prepare the ports, surrounding infrastructure, but house an agile workforce. Currently this type of collaboration is limited and can benefit from governmental endorsement given the perception challenges and reduce appetite from sector. CEWales is in initial talks to host a roundtable discussion on bridging the gaps from renewables to construction with the industry bodies mentioned above.
- Need for local supply chain capability expansion – skills – Recommendation to better prepare the construction sector supply chain by connecting the dots with the renewables awareness campaign (Marine Energy, Developers, WG, Catapult) and construction sector skills bodies, signalling capability requirements around new skills such as automation and transitioning of existing skills towards low carbon approaches, at pace. Both will be necessary to make the most of the offshore wind opportunity once demand launches. Further recommendation to host a skills bodies roundtable and ensure their presence as part of the expert working group.

Signposted Links

CEWales

Constructing Excellence - [Pen y Cymoedd Wind Energy Project - Constructing Excellence](#) – 2018 winner of civils project of the year.

CEWales - [Constructing Excellence in Wales :: Conversations that Matter \(cewales.org.uk\)](#) – Renewables insight from CEWales State of the Nation event - Wales could be on the cusp of an offshore wind boom. This was set against a backcloth of (i) Westminster's 10 point plan, (ii) the pace of change (by 2030 there will be a quadrupling of offshore wind {circa 40GW}), (iii) the Everoze Report (commissioned by the Crown Estate) on the future opportunities for wind (including offshore floating technology) and (iv) various projects, including Bluegem (off the coast of Pembrokeshire), the South West Wales catapult's ongoing work (MEECE and The Floating Wind Centre of Excellence), the Swansea Tidal Energy Project and the Gwynt y Mor Offshore Wind Farm Extension.

Professional Industry Bodies

ARUP – [Progress Innovative Multi-Rotor Floating Offshore Wind Concept](#) – Article to announce appointment.

Associated British Ports - [Associated British Ports | Future Ports: Wales Vision \(abports.co.uk\)](#) – Sets an overarching vision for ABP network of ports in South Wales – Swansea, Port Talbot, Barry, Cardiff and Newport.

[AtkinsRealis](#) – Innovation Challenge For Offshore Win – Article to announce win to create innovative offshore wind energy turbine organised by Norwegian oil giant Statoil.

CWIC - [Coalition for Wind Industry Circularity | University of Strathclyde](#) - The Coalition for Wind Industry Circularity so far comprises the University, the National Manufacturing Institute Scotland (NMIS), Scottish-headquartered energy company SSE Renewables, and Renewable Parts Ltd.

Engineering and Technology – [How innovation can make the UK a global leader in offshore wind | Engineering and Technology Magazine \(theiet.org\)](#) – Report demonstrating how significant cost and schedule savings are possible through innovation.

Innovate UK & Swansea University - [New funding to support wales' development of pioneering marine energy technology](#) - The funding will help establish the Launchpad project to ensure that, where possible, a local supply chain will support the fabrication, manufacture, and deployment of the platform, known as [PelaFlex](#).

Marine Energy Wales – [State of the Sector Report](#) & [Celtic Sea Opportunity](#)- In March, Wales' first floating offshore wind (FLOW) farm, Erebus, was given the green light. With the capacity to generate clean power for 93,000 homes. In North Wales, Magallanes Renewables' tidal stream device, to be deployed at Morlais Tidal Demonstration Zone, received vital UK Government revenue support, enabling the first commercial deployment of its kind in Welsh waters.

Mott Macdonald – [Technology Innovation](#) – Article to showcase potentials for the construction sector to fulfill the decarbonisation potential of offshore wind. [Revolution in Offshore Wind](#) – Sector Support.

Net Zero Industry Wales - [Net Zero Industry Wales \(nziw.wales\)](#) – Established in 2022, Net Zero Industry Wales is an independent organisation providing guidance and support to Welsh industries on their transition to delivering net zero. Represent South Wales Industrial Cluster (SWIC) in a knowledge exchange with North East Wales Industrial Decarbonisation - The “Industrial hubs”, each have their own Place-Based decarbonisation narrative, connected by shared energy infrastructure (CO₂, hydrogen, electricity, etc.) within the cluster. Milford Haven Port and Port Talbot Port – floating offshore wind hub, associated British Ports.

ORE Offshore Wind Innovation Hub - [Offshore Wind Innovation Hub – Coordinating UK offshore wind innovation](#). - The Offshore Wind Innovation Hub's roadmaps are advanced prioritisation tools that identify the innovation needs of the offshore wind sector.

Offshore Wind Industry Council - [OWIC | Pathways to Growth](#) - Pathways to Growth (P2G) is the Sector Deal's workstream focused on identifying and addressing the key environmental and consenting challenges that will be a barrier to the UK meeting its offshore wind 2030 target and playing its full role in delivering net zero. [UK Supply Chain Capability Analysis: Summary Report 2023 - P](#)). This report is the product of an industry-wide effort to provide a detailed assessment of the opportunities for the UK offshore wind sector.

Offshore Wind Growth Partnership - <https://owgp.org.uk/1m-funding-for-uk-supply-chain-projects-to-tackle-offshore-wind-supply-chain-priorities/> - OWGP has released its latest Innovation Grants



competition, which will see a total of £1 million awarded to successful supply chain companies to develop new products and services for the offshore wind sector.

RenewableUK Cymru - [Future Energy Wales. The Critical Role of Welsh Wind-Power](#) - 'Plug the gap' is the clear warning from RenewableUK Cymru's latest snapshot into the Welsh wind sector.

RenewableUK - [Offshore Wind Industrial Growth Plan - 2024 \(ymaws.com\)](#) – The Industrial growth plan sets out an ambitious vision for the UK in the new era of global offshore wind. [Building UK Port Infrastructure to Unlock the Floating Wind Opportunity](#) – Report to highlight importance of building port infrastructure as the UK does not currently have the required port infrastructure to unpin industrialised scale FLOW deployment.

Industry Organisations

BMT – [Offshore Wind Planning](#) – Offers support on levelized cost of energy analysis.

[Celtic Sea Blueprint](#) - The Celtic Sea Blueprint sets out the minimum required infrastructure and supply chain for delivery of the proposed 4.5GW (based on three 1.5GW projects) Leasing Round 5.

Dulas – [DULAS-Renewables-brochure_2022.pdf](#) – Organisational profile page.

Equinor - [Equinor looks to Celtic Sea for new floating offshore wind opportunities - Equinor & Equinor in the Celtic Sea - equinorcelticsea.co.uk](#) – Announced its interest in developing gigawatt scale floating offshore wind in the Celtic Sea, with the upcoming Celtic Sea floating wind seabed leasing round in view.

Gobe Consultants - [Floating offshore wind in the Celtic Sea: a leasing round update – GoBe Consultants](#) - In the [update](#), the Crown Estate confirmed that the overall balance between opportunity in Welsh and English waters has been retained.

Heidelberg Materials – [Padeswood CCS plans reach another milestone | Heidelberg Materials UK](#) – 2024 - Signed a front-end engineering and design (FEED) contract for a carbon capture plant at our Padeswood cement works in north Wales. Once operational, it will provide net zero building materials for major projects across the country, enabling us to help decarbonise the construction industry and meet our ambition to become a net zero business.

Hiraeth Energy – Mor Glas - [Welsh wind developer withdraws from the Crown Estate leasing round in the Celtic Sea – Môr Cymru \(mor.cymru\)](#) - Hiraeth Energy, a Welsh renewable energy developer established to maximise the benefits to Wales of large-scale renewable energy development, has announced that it will not be able to participate in the Celtic Sea offshore wind leasing round due to structural impediments introduced by the Crown Estate's leasing process.

Floventis Energy - [Floventis Energy - Green Energy Out of the Blue](#) - The Llŷr 1 and Llŷr 2 projects, comprising of two separate 100MW sites located south of Pembroke, on the UK's Welsh coast.

Reventus Power & EDF - [Gwynt Glas Floating Offshore Wind Farm sees new partnership formed | Reventus Power Limited](#) - EDF Renewables UK is entering into a partnership with Irish renewable energy developer ESB, and global offshore wind investor, Reventus Power to develop Gwynt Glas Floating Offshore Wind Farm in the Celtic Sea. RWE in Wales - Awel y Môr (the Gwynt y Môr extension, off the coast of North Wales is scheduled to be the single largest renewable energy

investment in Wales over the next decade and will provide enough power for 600,000 additional homes.

Magnora Offshore Wind - [Magnora Offshore Wind explores Celtic Sea with Hiraeth Energy – Magnora Offshore Wind – 2022 Announcement to support Hiraeth Energy.](#)

Marine Power Systems - [RWE commissions study with MPS into Celtic Sea opportunities for ports and suppliers - Marine Power Systems](#) – RWE has commissioned Swansea-based Marine Power Systems (MPS) to develop a project plan for delivering up to 1 gigawatt (GW) of floating wind using the ports

ABP Port Talbot and Pembroke Dock for foundation assembly and turbine assembly. In addition, the study will identify what materials and components could be sourced from South Wales and the wider supply chain.

McKinsey - [Succeeding in the global offshore wind market | McKinsey](#) - This article describes the offshore wind opportunity, progress at the regional and country levels, and tailwinds that could

support growth. It also discusses the challenges companies could face and how success in four areas can help them win auctions, execute projects, and support profitable growth.

Welsh Parliament

[Grid capacity in Wales - Welsh Affairs Committee \(parliament.uk\)](#) - In July 2021 we published a report on Renewable Energy in Wales. One of the key conclusions of the report was that developers of renewable energy were encountering problems with grid capacity and connecting to the electricity grid in Wales.

[Harnessing Wales' marine renewable energy: the story so far \(senedd.wales\)](#) -2023, To mark the beginning of the 'Conference of the Peripheral Maritime Regions' (CPMR), which the Senedd is hosting, this article looks at what Welsh Government commitments mean for marine renewable technologies in Welsh seas.

Welsh Government

Carbon Trust - [future-potential-for-offshore-wind.pdf \(gov.wales\) & Accelerating innovation to Net Zero: Offshore wind | The Carbon Trust](#) 2018 report prepared for the Welsh Government based on an impartial analysis of primary and secondary sources, including expert interviews.

[Floating wind in Wales substructure and port review \(gov.wales\)](#) – Catapult summary of report prepared with ORE to develop governmental understanding of what the floating offshore wind sector requires in Wales.

[Renewables | Trade & Investment | Wales \(tradeandinvest.wales\)](#) - Trade & Invest Wales is the official Welsh Government Foreign Direct Investment marketing initiative for Wales.

[Written Statement: Update on Trydan Gwyrdd Cymru \(5 December 2023\) | GOV.WALES](#) - Trydan Gwyrdd Cymru is being set up to accelerate the development of renewable energy projects on the wider Welsh public estate and maximise their value for the people of Wales.



News

Business News Wales – 2024 - [Gwynt Glas Floating Offshore Wind Farm Sees New Partnership Formed \(businessnewswales.com\)](#), [Offshore Wind Industry Unveils Industrial Growth Plan to Boost UK Economy by £25 Billion \(businessnewswales.com\)](#); [Celtic Freeport Can Benefit from UK's Offshore Wind Skills Development \(businessnewswales.com\)](#); [UK Government to Support Floating Offshore Wind Hub at Port Talbot \(businessnewswales.com\)](#); [Three Welsh Companies Selected for ORE Catapult's First Floating Offshore Wind F4OR Programme in Wales \(businessnewswales.com\)](#); [Welsh Government Kicks Starts Pembroke Port Floating Wind Ambitions With £1m Fund \(businessnewswales.com\)](#) -Game Changing Boost for Offshore Wind Development Investment in Wales ([businessnewswales.com](#)) - By examining the strategies that have led to successful outcomes in other UK regions, South West Wales can accelerate its own development of specialised educational programs and training systems tailored to the needs of the offshore floating wind sector and other related industries.

Catapult - [ORE Catapult launches first floating offshore wind supply chain development programme in Wales with Floentis Energy - ORE](#); [The-UK-Offshore-Wind-Industry-Supply-Chain-Review-by-Martin-Whitmarsh.pdf \(catapult.org.uk\)](#); [Industry Insights Archives - Floating Offshore Wind Centre of Excellence \(fowcoe.co.uk\)](#); [Floating Offshore Wind Anchor Review \(fowcoe.co.uk\)](#)

Construction Enquirer - [Green light for giant North Wales offshore wind farm | Construction Enquirer News](#) – Article to announce the The Awel y Môr project off the coast of Llandudno which ranks as the biggest renewable energy infrastructure investment in Wales for more than a decade.

Heidelberg Padeswood CSS Project - [Padeswood CCS Project, the UK \(nsenergybusiness.com\)](#) - The Padeswood CCS Project is a Carbon Capture and Storage (CCS) facility being owned and developed by Heidelberg Materials UK (previously Hanson UK) in the UK. Relevant for the drive to create low carbon cement (used in offshore wind structures).