

OFFSHORE WIND: A FUTURE NATIONAL GROWTH INDUSTRY

By:

Dr Jo Dally, Chief Business Officer, National Composites Centre

Dr Stephen Wyatt, Director of Strategy and Emerging Technologies, Offshore Renewable Catapult

The UK industrial opportunity

1. The 2024 Offshore Wind Industrial Growth Plan (IGP) estimated the global offshore wind opportunity at **£1300bn over the next decade**, with the UK wind market alone forecast to undergo 4X growth. This would see the UK remain one of the largest wind energy markets, perhaps second only to China. The sector also has strong regional growth prospects and relationships with Mayoral Authorities to build on. We believe this warrants the sector being a core plank of the UK's future industrial and investment strategy.
2. Despite the scale of the industrial opportunity, the potential for UK manufacturing content is not being fully realised. There is an opportunity now to radically change this, investing to create a national wind manufacturing industry that both serves our UK market and captures global market share. The UK should **target up 50-60% domestic manufacturing content by 2035** (over and above O&M).
3. Offshore wind has matured to a stage where a joined-up industrial strategy – similar to that applied to the Automotive, Aerospace sectors – should be deployed. An approach essential to capitalise on the opportunity to establish a commercially sustainable, national wind manufacturing industry in the UK. Such an approach would:
 - **increase cumulative GVA by ~£121bn by 2035** (direct, indirect and induced effects).
 - deliver an increase of **over 100,000 direct manufacturing jobs**, and over 200,000 indirect and induced jobs, compared with no action
 - accelerate technology and product **cost reduction and time-to-market**, boosting manufacturing throughput and product reliability
 - **expand supply chain capacity and the skills pipeline** needed to serve this growth industry.
 - Generate **UK IP and partnerships** capable of delivering the next generation of market-making products and technologies across advanced manufacturing sectors, clean energy industries and digital technologies.
4. Experience from other sectors has proved that to have maximum impact **end-to-end, connected pathways from breakthrough research to industrial adoption are critical**. Our proposed interventions deliver this, closing gaps in the UK wind ecosystem and acting as a catalyst to securing investment, strengthening international partnerships and trade, and generating innovations for regulatory and consenting improvements that will accelerate our transition to clean energy and infrastructure.
5. Investing in an industrial intervention now would **position the UK as the global leader in floating offshore wind**, delivering on the national ambition to be a clean energy superpower and driving long-term economic growth and sustainable jobs in communities across the UK. The innovation and investment strategies of e.g. the National Wealth Fund, GB Energy, and The Crown Estate should focus on securing this prize.

6. The UK is not alone in looking at this opportunity. The EU is making large public investments in growing offshore wind supply chains, and the UK risks losing out to international competitors if it does not act now. This includes new turbine OEM market entrants from China and Korea. Now is the time to act to secure this future manufacturing industry in the UK.

Our industrial vision for the UK

7. The IGP highlighted the opportunity presented by both the deployment and manufacture of future offshore wind products. Developed by leading businesses in the sector, devolved governments, regions, and ourselves, action is now underway to develop the installation, operation and maintenance supply chains needed for offshore wind deployment. But this only captures part of the opportunity. We believe the UK must act in parallel to capitalise fully on the manufacturing market opportunity, focusing on its five areas of strength - Blades, Floating sub-structures, Cables, Towers and Electrical equipment – which account for the highest value of manufactured products in a wind turbine installation.
8. As offshore wind will be a critical part of the UK's future energy production, the industrial opportunity beyond the time horizon considered by the IGP (2024-2035) is also significant. Products will be multi-generational requiring new technologies and service solutions that will sustain the industrial system for decades to come. The Global Underwater Hub has also identified an opportunity to position the UK as global leader in Floating Offshore Wind underwater operations (subsea cables, mooring and anchoring systems, survey, installation, O&M).

The case for action – Creating industrial ‘connected pathways’ for wind

9. Product leadership across Blades, Floating sub-structures, Cables, Towers, Electrical equipment technology families will be critical to the **creation and retention of knowledge and IP in the UK**. This needs to be accessed and exploited by national manufacturing facilities. Without long term product leadership, supported by a deep connection to the research and innovation base, manufacturing assets can be short-lived as products fail to keep up with advances in technology and facilities become home to transient ‘blue collar’ jobs that migrate overseas.
10. By establishing **Connected Pathways** through research and innovation, validation, demonstration and deployment, the wind industry could sit alongside automotive, defence, and aerospace as multi-generational national manufacturing successes. To unlock this opportunity, we need to:
 - Scale up investment in **targeted research programmes and capabilities** through e.g. SuperGen hubs to ensure next-generation products and services are technologically superior to competitors’ and subsequent manufacturing investments are ‘stickier’.
 - **Expand the ‘pull through’ and de-risking of technology** by investing in growing the capabilities and innovation programmes of RTOs (e.g. Catapults) through to proof-of-concept stage.
 - Create first-of-a-kind facilities to demonstrate and derisk product, manufacturing and validation technologies **at full industrial scale**.
 - Invest in the **development of a workforce** with the applied, industrial skills needed.
 - **Secure industry partners** to set up manufacturing facilities.

11. This intervention is on a burning platform. The UK Government needs to signal a long-term commitment to this industry, to the new technology and to the supply chain, just as they did through the Faraday Battery Challenge, the Advanced Propulsion Centre and Automotive Transformation Fund. Any decision-making delay immediately starts to erode the foothold that UK industry can obtain in floating offshore wind in the Celtic Sea as the supply chain needs to be moving now to secure FID¹ by 2028.

Connected pathway to industrial opportunity – the giga factory example

12. Recent industrial success in the development of battery technology and supply chains demonstrates the effectiveness of our ‘connected pathways’ approach. The 7 year, £610m Faraday Battery Challenge and £1bn Automotive Transformation Fund programme supported leading R&D (TRLs 1 through 9), including the Faraday Institution (TRL 1-3), major Innovate UK CR&D programmes, and the £160m UK Battery Innovation Centre for manufacturing prototyping. This has seen both the 2GWh AESC plant expanded to 32GWh and the commitment from Agritas (a TATA company) to build a world leading Gigafactory in Somerset. Critically, all of this is supported by a comprehensive skills development programme to create a future workforce with the right industrial skills at the right time.
13. Creating a wind industry connected pathways for Blades, Towers, Floating sub-structures, Cables, and Electrical equipment would allow us to coordinate the industry’s innovation challenges, creating integrated supply chains and innovations across fundamental materials development, new product solutions, system modelling and simulation, manufacturing process development, sustainability solutions and operational optimisation.

¹ [FID is the point where major equipment orders are placed, and contracts executed for the engineering, procurement and construction stage of a project](#)