



Infrastructure should be multipurpose, and Bardex's port facility designs are just that

Forging a new future for the UK's steel industry

Words: Ian Finch, Director of Business Development Europe, Middle East, and Africa

How can the UK revitalise its steel industry while investing in offshore wind? Stimulating marine collaboration in offshore wind, shipbuilding and repair, and oil and gas decommissioning could pave the way forward.



British readers of a certain age will fondly remember the classic Heineken beer TV adverts of the 80s and 90s. One such advert started with some roadworkers digging a hole in a busy road. Along comes another contractor who asks if he can lay his gas pipe in the hole at the same time. Then a cable contractor asks if he can install his power cable, and another worker offers to install his phone cable. The voice over then says: 'How Refreshing, How Heineken!'. It was a hilarious advert that perfectly captured how a 'refreshing approach' to collaboration and forward planning can benefit multiple industries.

Following on from that theme, transforming the UK's steel sector into a cornerstone of the

energy transition will require more than just cleaner furnaces. A joint approach across offshore wind, shipbuilding, and decommissioning, supported by adaptable infrastructure and tighter industry collaboration, can lay the groundwork for long-term industrial strength and global competitiveness.

However, becoming the backbone of a modernised steel industry will take a three-tiered approach.

It's a bold goal, but other countries have made similar leaps. Take Norway and its 'blue opportunities' initiative as an example. Leaders made an effort to extend the

country's status as a world leader in the ocean economy while simultaneously striving to achieve doing so sustainably. The policy focuses on six core tenets:

- Future oriented ocean industries
- Education, skills, and the labour market
- Research, technology, and innovation
- Sound management and a predictable framework
- Clean and healthy oceans
- International cooperation and ocean diplomacy

Could a similar approach be applied to the UK steel and maritime sectors, and if so, what could this look like?

Firstly, choosing port assets and infrastructure that use minimal space and can support multiple industries isn't optional, it's essential. Secondly, reducing information silos within the marine industrial sector will allow optimisation that will benefit everyone. And finally, meeting the goal of elevating British industrial competitiveness to international recognition will require a truly collaborative approach.

Together, these steps will help invigorate not only the steel industry but also bolster the blue industries behind it.

Infrastructure

There is a limitation of coastline, even for an island nation, so the smart move is to begin thinking about how to expand the coastline pie, rather than divide it between industries. Forward-thinking infrastructure development requires 'multi-purpose infrastructure' that minimises required land use and harbour space.

Current floating offshore wind loadout methods typically employ use of large slipways, very wasteful of precious land and harbour space, or the transfer of the floater from the quay onto semi-submersible barges or semi-submersible vessels using self propelled modular transport (SPMT) units. Barges must be manipulated by tugs, a slow, expensive and carbon-intensive operation, that is highly weather dependent.

These methods cannot load out fully integrated turbines, i.e. with the tower, nacelle and blades already installed, so the floating foundations must then be brought back to the quayside for turbine integration using a large ring crane, which have a huge footprint, are very expensive and are in very limited supply globally. This creates additional marine operations and bottlenecks due to weather inclemency. Innovative, 'think outside the barge' approaches to facility design avoid these pitfalls.

In addition to navigating around all those issues, the same facility that is equipped for offshore wind assembly should likewise be able to accommodate ship repair. The

construction and installation phase of offshore wind will eventually reach a peak, and as it slows down, O&M demands will ramp up. Tow back to port repairs on major components will require systems capable of recovering fully integrated turbines back onto dry land. And the service operation vessels (SOVs) that maintain the wind farms will need maintaining themselves. So, shipyards should have a plan in place to pivot, keeping local jobs secure and the high capital spent to prepare the site in use for decades to come, maximising the port's or shipyard's RONA (Return on Net Assets).

Bardex's proven OmniLift™ hydraulic chain jack ship lifts have been safely launching and recovering ships and submarines for decades. This same technology can be scaled to perform floating offshore wind launch and recovery, and the same asset can also be used to lift end capped monopiles, ships, submarines, or any other floating assets that can fit on the lifting platform. This gives the port a diversified capability to support multiple sectors.

Between aging assets and the transition to greener energy sources, the decommissioning of oil and gas infrastructure is quickly becoming a global problem. However, it offers a prime opportunity to use offshore wind infrastructure already being put in place, and to recycle the steel into offshore wind components, contributing to the next generation of energy infrastructure.

Decommissioned oil and gas assets should provide very good quality materials for recycling into new uses. When disassembling an offshore oil platform, all the steel can be melted down into new products, such as foundations, anchors, and mooring components for the new offshore wind industry. By locating the decommissioning / new construction yards near to the steel plant(s) the carbon footprint can also be reduced.

Decommissioning of oil and gas assets will become an important piece of the circular economy, instead of simply a book end to fossil fuel's dominance. It serves both a practical purpose, and helps transition oil and gas industry professionals into the energy transition.

Shipbuilding and repair go hand-in-hand with offshore wind. Japan already has plans to use the harmonies between the two to re-establish its own shipbuilding sector.

Regular and emergency maintenance of offshore wind turbines will require fleets of new SOVs to go to and from the wind farms. And to cheekily point out the obvious, building new vessels requires local steel.

Importantly for the local economy, SOVs are best maintained close to the wind farms they service. The use of foreign or distant repair yards increases carbon footprint and shortens the working period before their next needed



Ian Finch, Director of Business Development for Europe, the Middle East, and Africa for Bardex and Jason Simeon, Chief Executive Officer of Gabriel Engineering Group shake hands after signing the MoU



The UK facility will build upon Bardex's decades of experience building all of the equipment it designs. Advances in the BarLatch® design will mean approximately a 30% reduction in weight for future projects, but the cumulative need of six pieces per turbine in a development field adds up

maintenance trip, resulting in delays to wind turbine maintenance schedules, increasing risks for the operator. So, what better place to set up a vessel maintenance facility than the same place where the turbine assembly infrastructure was installed?

Reducing information silos

Understand that silos cannot exist in an optimised marine sector. Key players must connect with their counterparts in other industries. If those in offshore wind only attend offshore wind trade shows, then those shows can become an echo chamber. The same can be said for those working in shipbuilding and repair and the decommissioning of aging oil and gas assets.

All these industries could learn from one another if only more opportunities were organised. What infrastructure will they need in the short and long term? What do their workforce training programs look like? Or what should they look like to support the future development of the marine workforce? How can they collectively support the seaside communities that are now less vibrant than under previous booms to attract younger workers away from thriving cities?

Finding answers to these types of Big Questions will benefit industries and communities. Networking, brainstorming and collaboration is key.

Elevating British industrial competitiveness

Everyone shares a common goal: putting the UK's manufacturing capabilities back on the world stage. US-based Bardex Corporation is committed to making it happen and recently signed a memorandum of understanding (MOU) with UK-based Gabriel Engineering Group who are planning to build a new advanced manufacturing facility for anchors, mooring connection and tensioning systems, and hydraulic chain jack technologies. The proposed purpose-built facility is expected to efficiently deliver key assets for the maritime supply chain, using British-produced steel.

Bardex previously designed and built approximately 90% of the skidding equipment delivered into the North Sea oil and gas fields and with its recent opening of its new UK office in South Tyneside, it is eager to support the revolution in the British energy sector.

Industry can't accomplish all of this in a vacuum. Bardex and Gabriel Engineering group are already collaborating with steel mills, foundries, and the National Manufacturing Institute of Scotland (NMIS) with funding from The Crown Estate to design a purpose-built facility that will fully support this supply chain acceleration endeavour. Ports that can diversify into the supply of products for offshore wind, defence and

shipbuilding will compensate for uneven demand swings that will be evident in all these industries over the course of the life of a factory.

Ports that implement smarter, multi-industry solutions will realise enormous revenue growth and employment opportunities for decades to come, supporting manufacturing, commissioning, and O&M supply chain activities right through to end-of-life decommissioning, generating a thriving, truly circular local economy.

Shared infrastructure provides economies of scale by keeping volume throughput high. This allows investors to feel confident with a wide array of potential projects and clients to service

The fate of UK offshore wind hangs in the balance with the country's steel industry. Without a local source of steel, the costs of shipping large components from overseas will impact already tight project budgets and the UK's ability to meet its ambitious offshore wind targets.

Reinvigorating one of the UK's most historic industries will not be easy. But a collaboration of marine industries can make a difference for the future of steel. To quote Heineken: 'That will make a refreshing change!'

 www.bardex.com