

The race towards neutrality





As the move towards carbon neutrality gathers pace, offshore wind farms will offer increasing opportunities for employment and prosperity. PES looks at how hubs such as Denmark's Port Esbjerg can play a pivotal role in the sector.

The green transition is making headway, and in less than a decade many countries are opting for steep reductions in carbon emission. It is a situation that creates a buzz in many industries that will be affected by the change in society currently dictated by the environment.

Changing the energy mix is the initial step, where the wind industry represents 40 years onshore, while offshore has risen steadily over the past 20 years. The near future will see the same industry also allowing for greener fuels to be delivered to trucks, trains, and ships, transporting greener products around the world.

Ports are vital in these networks and will therefore also play an instrumental role in the transition of the logistics networks. They are needed for installing offshore wind farms, for handling electrical fuels and for supplying ships with various types of fuels. The green transition will entail new business areas, job creation and prosperity for many societies, and the question remains, how to reap the benefits?

The big job creator is offshore wind

In 2020, the socio-economic impact study of offshore wind was released which indicated the possibilities for job creation. In essence, the report revealed that for every gigawatt of offshore wind installed, more than 9,500 full-time job equivalents are created.

The potential for 300 gigawatts of offshore wind in Europe therefore triggers an abundance of possibilities, while raising the question of how to find the workers and determine how they should be trained.

The production of wind turbines does, of course, require the most workers, but as activities are conducted offshore, crews for vessels and operators for ploughing, trenching, jetting and cable laying, in addition to technicians for the wind turbines, all need to be trained specifically for the tasks they are to perform.

The forecast scarcity of these specialists could well be another bottle neck in installing the wind farms, with the pace dictated by the plans for offshore wind in Europe. The question remains how these specialists are trained.

Training to meet the needs of the supply chain

In Esbjerg, Denmark, the city council created a task force, of which Port Esbjerg played an

integral part, to find out how the future workforce within the offshore renewable industry can be developed.

The need is related to Port Esbjerg's position as one of the epicenters for offshore wind in Europe. But the task force is also meant to contribute to meeting the high standards of Denmark's ambitious Climate Act.

The Danish Climate Act stipulates the requirement for a 70% reduction in carbon emission by 2030. This entails the construction of an energy island surrounded by 10 Gigawatts of offshore wind. The potential for a surge in jobs is evident, and the creation of education specific to the industry is a necessity.

The task force was a collaboration between the 80 companies working in the offshore wind industry in Esbjerg and it began by trying to find out how education of multi-skilled specialists is created.

The task force, together with vocational schools, training centers and the municipality, as well as the companies in the supply chain, created 'Green Skills'.

This approach moved beyond the need of a specific company and allowed for co-development, where companies share a pool of trainees to develop the specialist education required for offshore wind and thus Denmark's green transition.

This guarantee of being able to source a competitive workforce allows companies to develop strategies of growth in conformity to the plans for offshore wind in Europe.

Investing for the surge in offshore wind

At Port Esbjerg, the strategy of the supply chain for offshore wind provides the assurance that these activities will be relevant in the future. The intentions of the supply chain to grow with the offshore wind industry also allow Port Esbjerg to invest accordingly.

This was manifested through the commencement of a further 570,000 square meter of port expansion, in addition to the development of bespoke pre-assembly sites available for project lease.

The situation portrays a tripartite relationship between ensuring competency, investing for growth and ensuring port infrastructure to participate in the installation of future offshore wind farms.

The focus on ports in growth scenarios is not new. In 2013, the European Commission launched the communication on ports as engines of growth, where the need to modernize ports, while at the same time respecting the environment, was discussed in context to servicing the hinterland and catchment areas.

In offshore wind the picture is mirrored and it is the ability to perform the installation of the future wind farms that will dictate the speed of the green transition.

In May 2021, WindEurope stated in their report considering the 2030 vision that 'To deliver the offshore wind expansion set out in the EU's Offshore Renewable Energy Strategy, Europe's ports must expand and add new infrastructure'.

Conversely, the attractiveness towards the offshore wind industry is a duality between the companies operating within the port and the port authority, and any collaboration that may increase efficiency or reduce cost allows for leadership in the competitive landscape.

This phenomenon ensures that the supply chain in Esbjerg, together with the Port, is ready to engage in even more offshore wind projects in the future, but it does also yield new innovative possibilities for

companies not directly linked with the erection of wind turbines.

Creating new innovative business models

The offshore wind industry is the forerunner in the green transition, but there is also the same possibility within the maritime industry, as more than 200 new vessels will be needed over the next decade.

Owners of wind farms should be able to perform maintenance, with multi skilled specialists being transported on zero-emission crew transfer vessels. This will require vessels that are bespoke to the location of the wind farm, which in return will be met with the demand for long-term contracts from the owners investing in these vessels. However, such long contracts may pause the innovation needed to deliver zero-emission crew transfer vessels.

Esbjerg Shipyard, being part of the Granly Group, set out to develop a crew change vessel, which is efficient today but can also be converted to future fuels to allow for zero-emission transfer of technicians from shore to wind turbines.

The idea generation was carried out in co-operation with an abundance of stakeholders, hereunder Port Esbjerg, but

the key contributors were the experienced Norwegian ship designer Naval Dynamics and Hagland Shipbrokers, which focuses on the offshore wind segment.

The idea was to design a crew transfer vessel that was competitive in current market conditions while being future-proof and available for sale or lease for maintenance contracts that ensures the uptime of operations.

The hull design of the crew transfer vessel minimizes water resistance and hence the power needed to achieve service speed, while a range of machinery is available, including eFuels.

The creation of this future crew transfer vessel shows how belief in the future possibilities of offshore wind can drive the decision of companies to participate. This is obviously driven by the need to prosper, but in many cases the companies also aim to play an active role in the green transition.

The combination of participation due to personal or company gain, coupled with the requirements of society and the will to make an effort with regard to the climate are what generate new innovative business models. This is, however, not possible without the involvement of multiple stakeholders, and



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their combined action will create the structure for prosperity in the race towards carbon neutrality.

The creation of the structure for prosperity

The recipe for prosperity in the green transition entails competencies, capabilities, and competitiveness, built on the foundation of people who are able to collaborate in new ways. And they must do this both to the benefit of the individual, the community, and the environment.

As offshore wind ports today have become spatial clusters, which include part of the supply chain, they have also become hotbeds of innovation. This is achieved through strategic partnerships between companies operating within the port, coupled with pioneering entities monitoring the port ecosystem.

Port Esbjerg is co-creator and a participant in many different projects, and this naturally supports the main objective of delivering

adequate and correct port infrastructure for the installation and maintenance of the future offshore wind farms.

The green transition requires port authorities to revisit their role and engage with the plethora of possibilities within the offshore wind industry and thereby create the desired socio-economic effect by participating in the green transition.

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