

# RISK MANAGEMENT LEADERSHIP & ANALYSIS

## Asia's wind energy transformation

There is a surge of investment in onshore and offshore wind as the region's energy needs grow exponentially and governments become keener to mitigate climate change risks.

Projects are complex, involve multiple parties and are at the mercy of the weather; if something goes wrong – especially at sea – it can delay the project completion. Prudent risk management, excellent insurance co-ordination and careful planning are vital to ensure the project is delivered on-time and on-budget.

The last decade has seen Asia's wind energy market gain momentum with increasingly complex risks, with notable investments in China, Japan, South Korea, Taiwan and Vietnam. For example, China has a 35% clean energy target by 2030 and the country already accounts for over 30% of renewables investment globally.

Danish firm Ramboll is also building the Binhai North Offshore wind farm project in Jiangsu province, which will involve 100 turbines and create up to 400 MW (megawatts) that could provide enough power for up to 350,000 households.

### Marine warranty survey

For the construction of offshore wind turbines, a marine warranty survey (MWS) is needed to handle complex operations such as construction, towage and installation. The warranty helps verify the requirements laid down within the insurance contract.

The MWS involves risk evaluations and feasibility assessments.

This can include a location survey, approval of lifting procedures, transportation analysis (for example - vessel audits and tow gear inspections), installation analysis, cable layout reviews and an inspection of power equipment such as transformer stations. The sheer number of variables means a MWS should be carried out by a specialist firm which has access to a combination of experts such as engineers, mariners and naval architects.

### Vessels and cranes

Given the large and variable size and weight of wind turbine parts (from long blades to heavy turbines and generators), there are a wide variety of vessels involved. These include barges, heavy lift vessels, tugs and jack-up vessels – each designed for a specific

purpose. In addition, specialised cranes are needed to help lift the turbines into place in the ocean. The risks grow greater when considering the remoteness of the sites, working in extreme marine weather conditions and the complexity of coordinating multiple vessels at the same time while the turbines and equipment are erected.

The offshore construction process is global in nature with some parts of a wind turbine manufactured in India and China, and other parts made in Europe. The availability of specialized vessels designed specifically for loading, transporting, lifting and installing both foundations as well as wind turbines can be particular problematic in Asia, as many of the vessels are often in Europe at any one time. The ships also require specialised crane technology which is designed to lift the blades into place.

### Contractors' risks

There can be an unfamiliarity with building wind turbines offshore as some contractors grapple with a new concept of construction and new technologies, which are often considered prototypical or unproven by re/insurers. A lack of regional expertise and skills compounds this – especially to carry out crucial inspections and maintenance service, which is obviously a lot more difficult in middle of the ocean/sea.

Other challenges include the lack of governance on technical framework such as codes and standards specific to offshore wind farm. Fortunately, experience can be drawn from the pool of expertise developed in the offshore oil and gas industry which has matured over the past decades, particularly on construction methodology.



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Once operating, there is a loss exposure on the gearboxes and blades, which are becoming increasingly large and heavy – the largest blades in the world are a staggering 107 meters / 350 feet long. Operating large number of wind turbines of the same model also increases the risk of serial defects since they are subjected to the same operating regime in the same operating environment.

It is therefore extremely important that reputable EPC (engineering, procurement and construction) contractors and developers work very closely alongside their insurance partners in different phases of the project such as design, construction, testing and commissioning. It is also beneficial to engaged risk engineers from re/insurers to establish a common understanding on the repair and replacement capability, as well as the availability of spares in this region.

### **Growth ahead**

While there has been a slowdown in the number of new wind energy projects in the region as a result of Covid-19, the long-term outlook for offshore wind and the renewables energy sector in Asia is strong.

Construction sites will slowly return to normal as travel restrictions are eased. This is something that needs to be managed extremely carefully.

As the market evolves, expect the complexity and stakes to keep on rising – especially as populations and governments become more reliant on this form of power to fulfil everyday electricity needs.

*Allied World's team of underwriters, risk engineers and claims handlers are located across Asia Pacific – helping us to remain close to our partners, clients and renewable energy assets. Allied World is one of the few insurers in Asia with the regional expertise and experience to equip clients with the right advice to build and maintain the resources to deliver reliable and affordable energy.*

### **ABOUT THE AUTHOR**

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