ARTICLE

OPPORTUNITIES AND CHALLENGES IN FLOATING OFFSHORE WIND

Floating Offshore Wind Energy is a promising technology, complementing Bottom Fixed Offshore Wind Farms

I. Introduction

Compared to Offshore Wind, Floating Wind bears several advantages: Floating Wind Farms do not depend on solid soil and ground conditions and can be installed further off the shore to benefit from much stronger winds to generate more energy. Floating Offshore Wind does not (yet) contribute much as an energy resource on a global level but due to its great potential promises to deliver clean energy at a high scale in the future. However, Floating Offshore Wind projects also bear technical, legal, and financial risks that need to be kept in mind. With this insight, we give a brief overview on the opportunities and challenges involved in Floating Offshore Wind projects.

II. Opportunities

When comparing Floating Offshore Wind to the more established technology of Bottom Fixed Offshore Wind Turbines, it becomes clear that Floating Offshore Wind bears many advantages: Bottom Fixed Offshore Wind projects require a number of ocean conditions that are often difficult to meet. For instance, they require solid soil and ground structure which is not required for Floating Offshore Wind Turbines.

The majority of all Offshore Wind Turbines are installed in a water depth of only 27 meters or less. This is not ideal: Firstly, shallow waters are usually close to the shore – the wind energy, however, is much higher further off the coast. Further, shallow waters are limited in space and will become even rarer with the increase of sea level due to climate change. Additionally, those shallow waters closer to the coast are home to plant and animal wildlife and should therefore not be overcrowded by wind turbines. Hence, focussing on Floating Offshore Wind is favourable not only from an environmental perspective but also to raise the level of energy produced.

III. Challenges

The downsides of Floating Wind cannot be ignored and will be of particular importance to investors. With the increasing distance to the shore installation, operation and maintenance are more difficult to perform and lead to higher costs. This can be facilitated with good port infrastructure, which will become necessary as the field of Floating Offshore Wind is expanding.

Some technical factors which will be challenging during the expansion of Floating Offshore Wind are mooring systems, dynamic cables, the assem-

bly of the turbines themselves and foundation fabrication. The mooring of the turbines is a separate challenge to consider since it is unique to the floating turbines and not necessary in the Bottom Fixed sector. However, experience gained within the oil and gas industry can come in handy. Considering the electric cables, it is interesting to note that even with Bottom Fixed Turbines we have seen many issues and claims arising out of or in connection with the performance of high voltage cables. With Floating Offshore Wind, dynamic cables are required which need to withstand additional impairments such as continuous movement of the turbines and adverse weather conditions. Their performance might bring even more difficulties than it is the case for cables of Bottom Fixed Turbines. Above all, the sector of Floating Offshore Wind is quite new and small, and it might therefore be difficult to obtain all materials and equipment needed from one of the big and experienced suppliers on the Offshore Wind market. This, however, also brings new business opportunities.

IV. Solutions – contractual framework

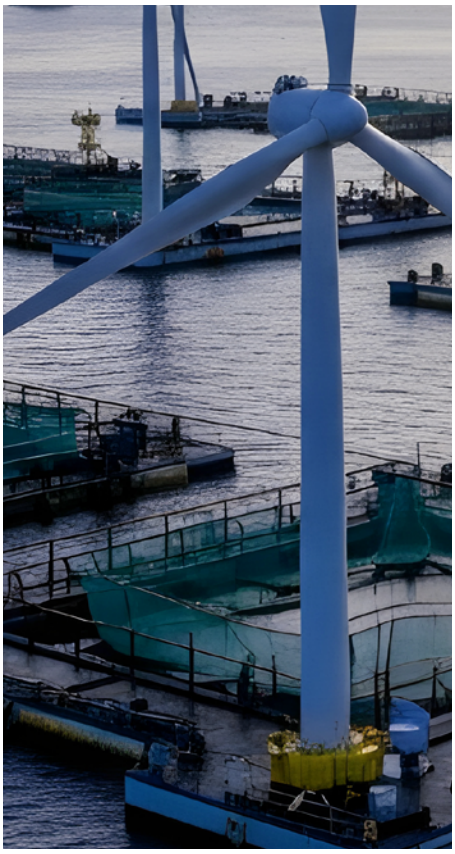
Many of the challenges mentioned above can be tackled both from a legal and technical perspective. Solutions on a contractual level make Floating Offshore Wind an attractive market for investors.

Starting with the contractual framework, multi-contract structure and EPC contracts are commonly used in the industry. By making use of a multi-contract structure, Floating Offshore Wind developers would enter into different contracts with different (sub) contractual partners for all areas and stages of the project. Under an EPC contract, one contractor will design, engineer and build the entire project on a turnkey basis – usually at a fixed price which is agreed upon in advance. This option mitigates the financial risks for developers which can make it particularly attractive, but it is also more rarely used in the market since not many contractors are willing to take the overall risk of a project – especially in such a young sector.

Regardless of the chosen contractual framework clauses on (delay) damages, distribution of risk and liability, warranty and time extension (including but not limited to cases of adverse weather) are highly relevant and should be carefully addressed and evaluated to mitigate potential challenges involved in Floating Offshore Wind.

When looking at potential claims for damages it is interesting to note that the performance of the turbine as a whole can mainly be affected by the floating foundation which is not the case with Bottom Fixed Turbines where the main focus is on the turbine itself. Having said that, damages are always a challenging subject for commercial negotiations which is especially true for multi-contract structures. The same applies for the distribution of risk and liability which must be done on a case-by-case basis in multi-contract structures often with a back-to-back liability regime. Considering the many differences in the structure and design between Bottom Fixed Turbines and Floating Offshore Wind Turbines and the early stages of Floating Offshore Wind warranty systems used for Bottom Fixed Turbines will not be sufficient to adequately allocate the risks in Floating Offshore Wind projects. Nevertheless, proper risk allocation must include well-developed warranty systems which might prove quite challenging.

To summarise, operating in a new field such as Floating Offshore Wind bears many unexpected challenges but also great opportunities and the possibility to take an early leading position on the market. The risks can be addressed in the contractual framework and by way of technical concepts.



V. Outlook

During the past years and months, many EU governments, and the EU itself have promised a transition to green energy. Considering the great need for more supply of renewable energy and the many advantages Floating Offshore Wind bears it is not surprising that Floating Offshore Wind is expected to supply a significant portion of the energy needed in the European Union in the future.

With the 30 MW Hywind project in Scotland and the 25 MW Windfloat Atlantic project in Portugal, Europe is the global technology leader for Floating Wind installations. At least seven countries have concrete plans to install Floating Wind in the next ten years. Projects are planned in France, the UK, Norway, Portugal, Spain, Italy, and Sweden.

KEY CONTACT

DR ECKEHARD VOLZ, LL.M. (STELLENBOSCH)
PARTNER I RECHTSANWALT

M +49 151 1460 6826
T +49 40 11 47100–2

eckehard.volz@noordenjones.com