



Offshore wind power - UK leads the world in installed offshore wind capacity

The first in a two-part series of articles about IP and offshore wind power by the Carpmaels & Ransford team

On 10th June 2020, Britain had gone two months without burning coal to generate power¹, and in the last year, renewables have generated more UK power than all fossil fuels put together. This has been able to happen thanks to a massive investment in the renewable energy sector over the last decade. Of particular importance is the collection of new offshore windfarms built in the last two years that have contributed to the increased capacity of wind energy generation. In fact, the UK leads the world in installed offshore wind energy capacity² and has the largest single wind farm off the Cumbrian Coast, the Walney Extension (set to be overtaken by the Hornsea One project in the North Sea, which is due to be officially inaugurated this year). In this first article we will look at the importance of the offshore wind power industry, the technology which enables expansion in different jurisdictions and how innovators can use IP to protect their investment as this sector continues to grow.

Wind power is essential to the transition away from fossil fuels, and the shift to a sustainable future. A fall in the cost of offshore wind power projects, as well as on-going government support and a rise in demand for decarbonisation of the economy have generated significant optimism and momentum for offshore wind power in the UK. The government launched a joint Offshore Wind Sector Deal, putting offshore wind in a primary position and aiming to provide a third of all UK electricity by 2030. In June, Crown Estate Scotland launched the new round of offshore wind power leasing in Scottish waters. And it is not just governments who are supporting growth in offshore wind power. Companies seeking to commit to a sustainable future are investing in green energy; for example, Covestro has signed a long-term power purchase agreement with Ørsted for the supply of green power produced from wind farms³. This cooperation secures cash flow for renewable projects and will stimulate accelerated expansion of offshore wind energy.

1 <https://www.bbc.co.uk/news/science-environment-52973089>

2 <https://www.gov.uk/government/publications/offshore-wind-sector-deal/offshore-wind-sector-deal>, and GWEC Global Wind Report 2019

3 <https://orsted.com/en/media/newsroom/news/2019/12/799146415974816>



Companies in this sector are investing heavily in IP, particularly patents, to safeguard their R&D efforts and to help drive technological advancement. The turbines in wind farms off the coastline today contain the technology covered by patents filed in the last two decades. Figure 1 illustrates that wind power installations have risen in line with the number of patents filed and granted from 2000 to 2009, highlighting a direct correlation between innovation and installations.

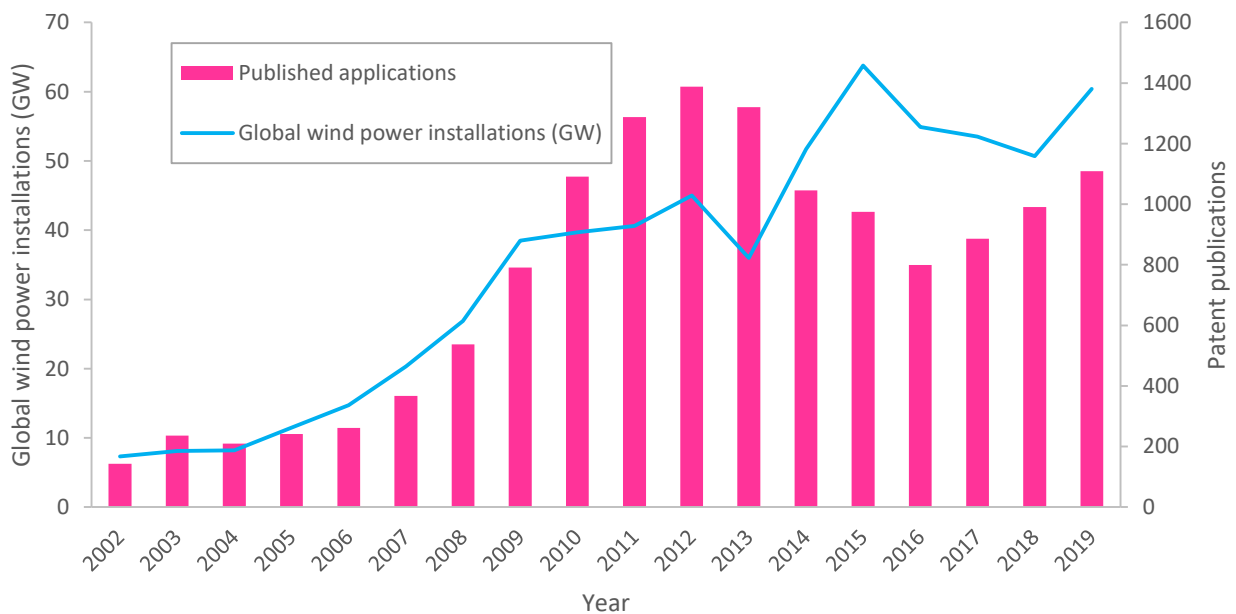


Figure 1: Patent publications per year in wind energy and global wind power installations in GigaWatts (Annual Wind Report 2019)

Although the global financial crisis had a knock-on effect on the wind power industry, numbers of installations are again increasing, greatly assisted by the tumbling costs of green energy, technological advancements, supply chain maturation, and new commissioning of wind power in China and emerging wind power markets such as Latin America. . The number of patent applications is also following an upward trend, representing increased R&D in this technology, including new coatings, methods of corrosion protection and novel floating installations. Over half of all patent applications relating to offshore turbine foundations that were filed in the last five years related to floating turbines.

Floating wind turbines could be used to overcome many of the technical issues associated with standard monopiles, as well as to unlock the potential of vast new areas having water depths currently too great in which to build standard wind farms. Part of the reason behind Europe and the UK's dominance of offshore wind power to date has been the comparative ease of installing turbines in the shallow yet windy North and Baltic Seas. Many countries either lack wind in significant areas of shallow waters (e.g. the US) or have too little shallow water (e.g. Japan), which has limited their development of offshore wind power. However, as this technology advances and is able to be scaled up to the level of conventional wind farms, we can expect to see further growth in offshore wind energy.



Since granted patents give the proprietor a national right to prevent competitors from working the invention, it is important to give early consideration to the countries in which patent protection will be sought. Given the global growth of the wind energy sector, the most robust patent protection is of course provided by filing large global patent families. However, budgetary constraints typically require a more selective approach. While the European markets have held the monopoly in offshore wind power generation to date, new emerging markets including China, Taiwan, South Korea and the US are beginning to challenge that position. Other growing markets with high offshore wind power potential include Colombia, Chile, Vietnam, Japan, Thailand and Kenya. An alternative or complementary approach to country selection is to consider the countries involved in the manufacturing supply chain, rather than simply the countries where the technology is implemented. Owing to the physical demands of product scale and manufacturing volumes, turbine manufacturers are often based near the wind farm construction site, but this is not necessarily the case and so an awareness of the geography of competitor activity is essential when deciding upon the most appropriate country selection in order to provide the most robust patent protection in the most cost-effective way, thereby enabling retention of market share and providing leverage for licensing agreements.

The trend in grants and oppositions of EPO patents illustrates that the field of offshore wind power is a competitive one. The number of granted European patents in this sector has steadily increased over the last 20 years before reaching a plateau in 2016 and about 12% of these patents were opposed (see Figure 2). This rate is significantly higher than the average opposition rate in the EPO which is around 3%. The companies filing these oppositions are well aware of the commercial implications of the risks and uncertainties inherent in IP infringement and seek to knock out competitor patents centrally in the EPO in order to avoid costly national, and often multi-jurisdictional, litigation at a later date. An awareness of the IP activity of competitors is essential, and setting up reliable alerts to identify and monitor potentially blocking patents is one of the cornerstones of a sound IP strategy.

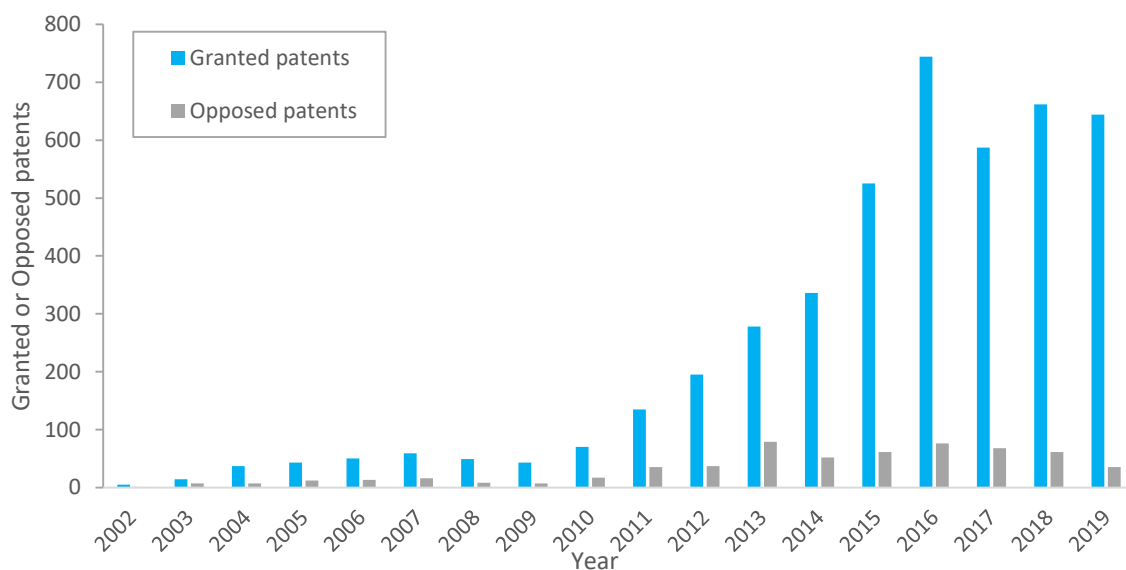


Figure 2: Granted and opposed EPO patents in the wind energy sector



Summary

Although the UK and Europe have led the way in the offshore wind energy sector, it is clear that other markets are emerging. As the technology develops, so does the number of possible locations for offshore wind farms. Carpmaels & Ransford routinely advise clients upon global filing strategies, and draft patent applications which are successfully prosecuted to grant worldwide in order to provide our clients with comprehensive protection for all locations of interest over the lifetime of a patent. If opposition or litigation becomes a reality, we have a long history and enviable reputation in dispute management

In the next article we will be delving deeper into the areas of innovation in the offshore wind energy sector and taking a look into some of the issues that may arise during prosecution and defence of patents in this field.

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