



Heading for new shores: emerging markets drive global offshore wind growth

Nordsee One offshore wind farm

Offshore wind is all the rage right now, competing without subsidies, floating into deeper waters with new foundation designs and bigger turbines. For all its promise, however, offshore wind remains mostly a European affair, with more than 15 gigawatts of capacity installed in European waters by the end of 2017 and less than two gigawatts elsewhere. Slowly but surely the picture is beginning to change. The US, and Asian countries including Taiwan, are progressing ambitious offshore wind plans. Leading European energy companies want to benefit from this ambitious mood. PES invited Vladimir Nicolaas, innogy Head of Offshore Growth & New Business, and Chris Willow, innogy Business Development Manager Offshore Wind, to give an insight into innogy's global offshore growth aspirations.



Chris Willow



Vladimir Nicolaas

With more than 1,000 megawatt of installed capacity (pro rata), innogy is one of the world's leading operators of offshore wind farms, trailblazing the industry since 2004. Together with investment partners, the company owns seven operational wind farms off the UK, German and Belgian coasts. 'Our strong European footprint is the backbone for our global growth plans,' Chris explained. 'Our aim is to actively pursue and unlock opportunities worldwide,' Vladimir added. 'We plan to do this by entering into partnerships with both global and local partners who we can work with throughout

the full lifecycle of the project, from early development through to operations – just as we already do in Europe.'

innogy has extensive experience of delivering successful energy partnerships in the European offshore wind sector. The company has completed the majority of their now operational projects within a partnering structure – including manufacturers, financial investors, banks and municipal utilities.

'We are familiar with the wide range of different types of partnerships and have developed an excellent reputation in this area. Galloper offshore wind farm, which started full commercial operation earlier this year, is a good example: When three partners and 12 banks are convinced of the quality of the project and are willing to join us in the investment, then we're confident that we've done everything right – in fact we were oversubscribed with potential investors,' Chris stated.

innogy is very flexible in their partnerships. 'We're happy to deliver the development, construction and operational roles within a project. This ensures that the project is managed in a highly professional way and benefits from our experience, including valuable lessons learnt being applied. Equally we're very happy to participate in a joint venture with a minority share and deliver our experiences through a joint delivery team, as we do at Nordsee One.' innogy is partnering with Northland Power and Enova in this 332 megawatt project off the German coast.

Significant development pipeline in Europe

'Beside our strong operational portfolio, we have a healthy development pipeline in offshore wind with a planned installed

capacity of around 2.5 gigawatts (pro rata),' Chris explained. One of innogy's key development projects in the UK is the 1,200 megawatt offshore wind farm Sofia in the Dogger Bank zone. In addition the 860 megawatts Triton Knoll offshore wind farm, for which innogy secured a route to market in 2017, is expecting to move into the construction phase later this year.

In the second German offshore auction earlier this year, innogy was awarded the rights to build and operate Kaskasi offshore wind farm in the German North Sea with an installed capacity of circa 325 megawatts. The wind farm is expected to commence operation in 2022.

In March innogy entered the Irish offshore wind market by partnering on Dublin Array wind farm. It is an early stage offshore development project, located in the Irish Sea and planned with an installed capacity of around 600 megawatts. 'This partnership is another milestone in achieving our growth objectives in Europe,' Chris stated.

However innogy wants to expand beyond Europe. 'A clear trend has been developing for offshore wind. The technology continues to spread to a growing number of countries across the world,' Vladimir explained. Political uncertainty and insufficiently clear policies have the potential to jeopardise the progress in several of the new markets but a definite drive towards renewables is set to deliver significant growth. 'Realising the potential of offshore wind is crucial to meeting European and global renewable energy targets. The technological developments and innovation along with the cost reductions achieved in the offshore wind sector over recent years have confirmed it as a key part of the future energy mix.'



Galloper offshore wind farm

Taiwan’s offshore aspirations

One of the new players in offshore wind is Taiwan. Due to its isolated location and lack of natural resources, Taiwan currently imports more than 98 percent of its energy supply and is expected to face potential power shortages from growing electricity demand and plans to decommission all nuclear plants. Today there is a strong push from the Taiwanese Government to advance the growth of renewable energy as one of their key policies to addressing future power shortages, whilst stimulating economic growth through developing regional supply chains. The Government identified offshore wind as an ideal technology and plans to have 5.5 gigawatts of offshore capacity installed by 2025.

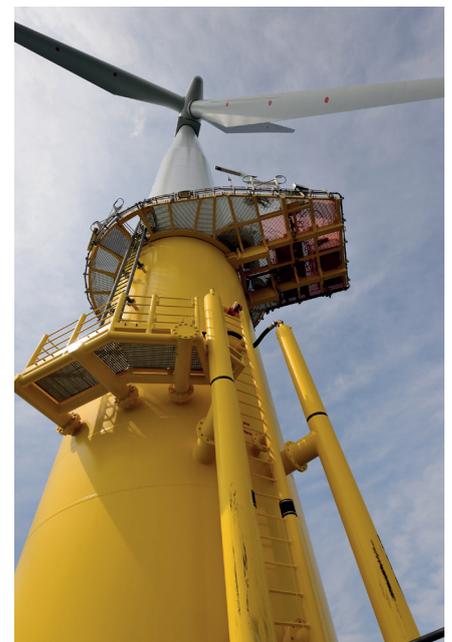
‘Taiwan made headlines when the country declared these ambitious growth targets for offshore wind,’ Vladimir said. ‘Although the level is relatively small compared to some other countries, for example China, the big attraction is that Taiwan is an open market with a strong economy and a positive commercial environment.’ Ultimately, Taiwan’s strong economy and renewable energy policy focus creates a favourable environment for international investors.

‘The Taiwanese government has taken concrete steps to clarify regulations and policies by setting targets and putting in place a feed-in-tariff mechanism. In addition the government will invest to fund renewable energy development to give confidence to domestic and foreign investors,’ Vladimir stated. ‘Furthermore, Taiwan offers a route into Asia Pacific market.’

With 3.5 gigawatts of new offshore projects already selected and a further two gigawatts soon to be announced by an auction in June, the Taiwanese market is expected to become a major offshore wind production hub in Asia. innogy is one of various European companies which are interested in this region, and has set up a new team based in Taipei to pursue opportunities across Asia Pacific.

US: the country with unlimited possibilities

Beside Europe and Asia, the US market is one of innogy’s key strategic growth areas for offshore wind. ‘The offshore wind industry in the United States seems to be gaining some momentum – accelerated by falling offshore costs, strong renewable targets at the state level and the proximity of potential sites to loads centres which minimises the need for large transmission



Gwynn y Môr offshore wind farm

system investments. High wind speeds and good soil conditions at various locations complete the positive picture,’ Vladimir continued.



Rhyl Flats offshore wind farm



Greater Gabbard offshore wind farm



Nordsee Ost offshore wind farm

According to a recent report from the U.S. Department of Energy, the United States is developing a robust pipeline of projects to ensure growth in the country's promising offshore wind market. Offshore wind farms with more than 23,000 megawatts of potential installed capacity are now in the works. Near-term activity is concentrated in the North Atlantic, but other projects are in various stages of development across the country, including the Great Lakes and the West Coast. The next step is for the US Federal government to inspire more

competition by offering new leases.

innogy took the important strategic decision, to increase its interest in developing renewable activities in the US, when it founded its subsidiary Innogy Renewables US LLC in August 2016. The company is based in Chicago and explores opportunities for offshore and onshore wind as well as solar.

'We believe that our experience and expertise can help fulfil the country's renewables potential,' Vladimir affirmed.

Company profile

innogy SE is a leading European energy company, with revenue of around €43 billion (2017), more than 42,000 employees and activities in 16 countries across Europe. With its three business segments Grid & Infrastructure, Retail and Renewables, innogy addresses the requirements of a modern, decarbonised, decentralised and digital energy world. Its activities focus on its more than 22 million customers, and on offering them innovative and sustainable products and services which enable them to use energy more efficiently and improve their quality of life.

The key markets are Germany, the

United Kingdom, the Netherlands and Belgium, as well as several countries in Central Eastern and South Eastern Europe, especially the Czech Republic, Hungary and Poland. In renewable power generation, the company is also active in other regions, e.g. Spain, Italy and the USA, with a total capacity of 3.9 gigawatts.

As a leader of innovation in future-oriented fields like eMobility, we are represented in the international hot-spots of the technology industry such as Silicon Valley, Tel Aviv and Berlin. We combine the extensive expertise of our energy technicians and engineers with digital technology partners, from start-ups to major corporates.

Renewables

innogy develops, builds and operates plants to generate power and extract energy from renewable sources. Part of the portfolio are wind and hydro power plants as well as solar and biomass plants. Currently, the company is particularly strongly represented in its home market, Germany, followed by the United Kingdom, Spain, the Netherlands, Poland and Italy. Innogy's aim is to expand renewables in Europe further, both on its own and working with partners.

The company believes that working together in this way is the key to making the energy transition a success. innogy is one of the major wind operators in Europe. At the moment the company is focusing on continuing to expand its activities in wind power. That's why, in addition to its core markets, innogy is already active in new markets such as the USA and Ireland. Another growth technology is the construction of utility-scale photovoltaic power plants - for example in Australia.

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