The present and future of offshore wind: An Interview with Michael Stephenson

Michael Stephenson, Associate Director of The Renewables Consulting Group spoke during Gard's 2021 Lillehammer Energy Claims Conference (LECC). The Conference was established in 1996 and chaired ever since by Jan-Hugo Marthinsen, Vice-President responsible for Offshore Energy Claims.

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Since its modest beginning as a forum for informal discussions between leading energy insurers and their loss adjusters, the annual Lillehammer Energy Claims Conference has grown to encompass representatives from global oil & gas companies, claims brokers and certain specialist service providers. This year was the first using an entirely digital platform .

"Energy Transition" was the first day's theme. Joining Michael on the panel were Jarand Rystad (Rystad Energy), Marie Bysveen (SINTEF), Lamberto Eldering (Equinor), and Tim Fillingham (McGill & Partners). Michael represented the renewables voice on the panel and stood well his ground in the panel discussion. It was a pleasure to interview Michael about some of the topics he touched upon during the "Energy Transition" session.

Michael, congratulation, well presented during LECC. Would you share with our readers, in a nutshell, what is the "Story of the next decade in offshore wind" that you were talking about?

Thank you Monica. The story of the next decade in offshore wind is truly about growth. The previous decade has been about offshore wind industry establishing itself as a serious energy player, but we're seeing now that in the next decade it will become a pillar of the future energy mix. I particularly highlighted the growth we expect to see in Asia, even outside of China – going from nearly zero to over 30 GW in 10 years – as well as how the oil and gas industry will take a role in this growth too.

For those unfamiliar with the term, GW stands for Gigawatt – just one GW can provide electricity to about 300,000 household so you are really talking about significant energy generation. Can you explain the difference between Onshore and Offshore wind farms? And what is the difference between Fixed and Floating wind?

An offshore wind farm consists of a number of wind turbines installed out at sea, sometimes close to shore but increasingly far from shore, over 100 km from the nearest coastline. They are typically larger in scale than land-based wind farms (both number of turbines and the size of turbines themselves) and have the benefit of increased wind speeds at sea where there is less terrain or interference in the wind flow. Fixed offshore wind farms are secured to the seabed with foundations similar to those used in offshore oil and gas, typically large steel structures which are piled into the ground. Floating offshore wind farms are still secured to the seabed, however they are used in much deeper water where it would be unfeasible to place fixed foundations. Floating offshore wind farms use a buoyant platform secured to the seafloor with mooring lines and anchors, making them more dynamic than fixed offshore wind farms.

Are offshore wind farms really thought through from an environmental perspective? I've just read, that 9 out of 10 birds would have voted for an offshore oil platform rather than an offshore wind farm.

Environmentally speaking, offshore wind farms are held to a rigorous standard for impacts to seabirds and other marine life. Here in the UK, they are subject to significant environmental assessment and a forensic examination of predicted impacts which can take many years, ensuring these impacts are kept to a minimum. Ultimately, in 10- or 20-years' time when the effects of climate change on the environment continue to develop, offshore wind farms will be helping to mitigate this much greater threat to seabirds. Offshore wind will have a huge part to play in providing large scale, clean energy generation to prevent further global warming around the world.

I think it is worth mentioning that studies are showing that larger more efficient turbines reduce bird deaths by reducing the proportion of an at-risk area that is occupied by the blades. With larger turbines, the ratio goes down, thereby reducing bird deaths .

What is the current installed capacity by GW - and will offshore wind ever get a significant share of the energy mix?

The installed capacity is growing all the time. As of the end of 2020, there was 34 GW of offshore wind installed worldwide. We forecast that this will grow to over 200 GW by 2030, and by that time it will be one of the key pillars of the energy mix. It may never reach the same capacity as onshore wind or solar globally, but there will be countries-particularly with long coastlines relative to their land area- that could see the majority of their power supplied by offshore wind in the future.

* **With the quick development of offshore wind in areas suitable for fixed installation the industry will have to develop the technology to operate in more challenging deep waters. When do you expect floating wind to become commercial?** *

* *Yes, although floating wind may take a little longer to develop. At RCG, we expect to see the first full-scale commercial floating projects online before the end of this decade, with the 2030s likely to be the decade where floating wind truly booms and starts to compete on a cost basis with fixed bottom.

Which countries were the offshore wind pioneers and which countries are the current leaders?

Denmark and the UK stick out as the two main offshore wind pioneers. Denmark because they will always hold the record for installing the first offshore wind farm, Vindeby, back in 1991 as well as a strong track record since then including the largely state-owned Ørsted (previously DONG Energy) making one of the most ambitious pivots to green energy we've seen. The UK is the current leader for offshore wind installed capacity (at 10 GW), and has been the pioneer for commercial scale offshore wind. They have succeeded by making commercial offshore wind cost-competitive with fossil fuels.

We see that a number of Oil and Gas Majors are diversifying into renewables. In your view what is the role of traditional oil and gas companies in energy transition?

The oil and gas companies and their workforce have a tremendous amount to offer the offshore wind industry. Their experience in the marine environment, operating industrial assets and managing industrial scale engineering out at sea has been invaluable. There are roles throughout the supply chain for oil and gas companies, from developers and owners like Equinor and Shell, to engineering, installation, inspection, maintenance and in the future asset life extension. I also see floating wind as a major opportunity for oil and gas companies to diversify, with their experience in floating oil and gas platforms.

*As discussed during the Conference there are several ways for oil and gas companies to reduce their carbon footprint, including investment in renewables. More than 25% of our premium in the Gard Energy portfolio, is connected with offshore wind which evidences our mission statement; “Together we enable sustainable maritime development”. Are renewables generally viewed these days as a positive business opportunity? *

Absolutely- renewables including offshore wind has shown itself to be a bankable, investor-friendly asset class. With the growth of technologies like energy storage and hydrogen the whole energy system is undergoing a massive revolution. And renewables will be at the forefront. .. At RCG, we are solely focused on renewable energy and in that way, we are wholly endorsing the industry as an opportunity for growth and offshore wind as a sector of the future.

Thank you Michael for sharing your thoughts and thanks also to all of our participants in this year’s Lillehammer Energy Conference. We hope to meet many in person in the months and years to come.