

Adopt a 'renewables-first mindset' by investing in offshore wind

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The UK's offshore wind industry is forecast to account for a quarter of the world's offshore wind capacity by 2022. It will also be the only country in the world to generate more wind power off the coast than on land.



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There is growing pressure from public and private bodies to avert the climate crisis by moving away from traditional fossil fuel power sources towards low carbon solutions. The growth in clean energy projects, such as wind power and solar, is a step in the right direction for a sustainable future. The UK's wind, solar and nuclear industry trade bodies have made a call to action demanding the government to set ambitious targets to

deliver a net zero power grid by 2035. Investing in cleaner and greener energy is a priority to push fossil fuel power off the grid.

Renewables and other clean technologies, wind power, solar power, geothermal power, hydropower, battery storage, fuel cells, biofuels, and more, have grown dramatically in adoption in the past ten years. This growth has been driven in large part by falling costs. Unlike fossil fuels, which must be extracted, shipped, processed, and combusted to generate energy, cleantech is precisely that: technology. Like all technology, as demand increases and product efficiency improves, costs fall. The time is ripe for increased investment in offshore wind.

This article will explore why the UK energy industry needs to embrace the growing opportunity in offshore wind. Overcoming the challenges, the industry faces will play a key role in meeting the global climate goals.

Offshore wind is the vanguard of an energy revolution.

To sustain our own rising energy demand and bring clean, reliable energy to those still going without it, a simplified, innovative solution must be brought to customers at all levels of energy consumption and conservation. Wind energy is one technology

that can help us achieve this goal. It is efficient, produces no greenhouse gas emissions, and is becoming increasingly popular as a renewable energy source.

As part of the Build Back Greener initiative, the government has committed to ensuring that offshore wind will produce more than enough electricity to power every home in the country by 2030, based on current electricity usage. This will boost the government's previous 30 GW target to 40 GW by 2030.

While this transition is good for the environment, it will be a challenging one for utilities. The country continues to reduce its reliance on fossil fuels while utilities are under more significant pressure to improve the efficiency and reliability of the power supply. Yet, the rise of offshore wind poses new and unfamiliar challenges.

More support and funding mean offshore wind farms are expanding. Latest innovations mean they can be installed further out to sea. Wind turbines themselves are also increasing in size to generate more energy, with 10MW+ machines likely in the future.

The potential drawback to giant wind farms is that bigger turbines and longer cables are required to connect the generated power to

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the grid. Without an innovative approach to high-voltage switchgear, utilities run the risk of contending with more expensive equipment and more frequent power losses.

The challenges of connecting wind turbines to the grid.

While it is true that wind turbines do not emit greenhouse gases, they can still create complications for grid operators, especially as they become significant contributors to total electricity supplies. Turbine productivity varies with the wind from minute to minute, and such intermittency can raise havoc with transmission and distribution systems designed for steady, reliable operation.

Connecting wind to the power grid brings with it a unique set of challenges, including surges, dips, distortions, and stringent grid code requirements. Even small shifts of power flows can trip circuit breakers, sending larger loads onto neighbouring lines and causing chain reaction failures.

So, what options do wind developers have for ensuring power-quality issues don't create problems for either the connected grid or their own operations? They need to look for energy

management solutions that can improve power quality and stabilise the voltage.

Wind developer should also look towards combining wind generation with energy storage to be more flexible. Batteries and other types of storage play a crucial role in enabling companies to embrace clean, low-cost, renewable energy at a higher level. By mitigating the intermittency issues that renewable power sources like wind and solar face, storage helps remove a significant barrier that has prevented greater adoption of wind and solar resources.

It's not all doom and gloom, however. The UK's wind energy industry is one of the country's most successful industrial stories and will be central in reaching the climate goals.

Renewables are blowing us closer to net-zero.

Despite the challenges, wind power and other green technologies hold enormous potential to build a skilled workforce, world-leading know-how, and production capabilities across the UK. Meanwhile, supporting our collective progress towards net zero emissions with high-quality products and technologies developed in the UK.

Switching to renewable energy and solutions are central to stopping climate change – as up to 80% of the world's emissions are caused by the fossil fuels-derived energy used to fuel industries, economies, and our daily life.

To satisfy this growing appetite for climate action, more should be done to empower consumers to become 'prosumers' able to generate their own green energy through solar, powering their own homes and reselling access power to the grid at peak times. Enabling decentralised multidimensional microgrids running on renewable energy will help power the growing energy needs of generations to come.

With the increasing pace of digital innovation, growing interest from investors and the continued growth of the renewables sector, the UK is leading in adopting a 'renewables first' mindset that would have sounded unachievable even just five years ago. It's clear that the UK has made significant strides towards decarbonising the energy industry. Now is the time to ramp up offshore wind to accelerate the global energy transition.

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