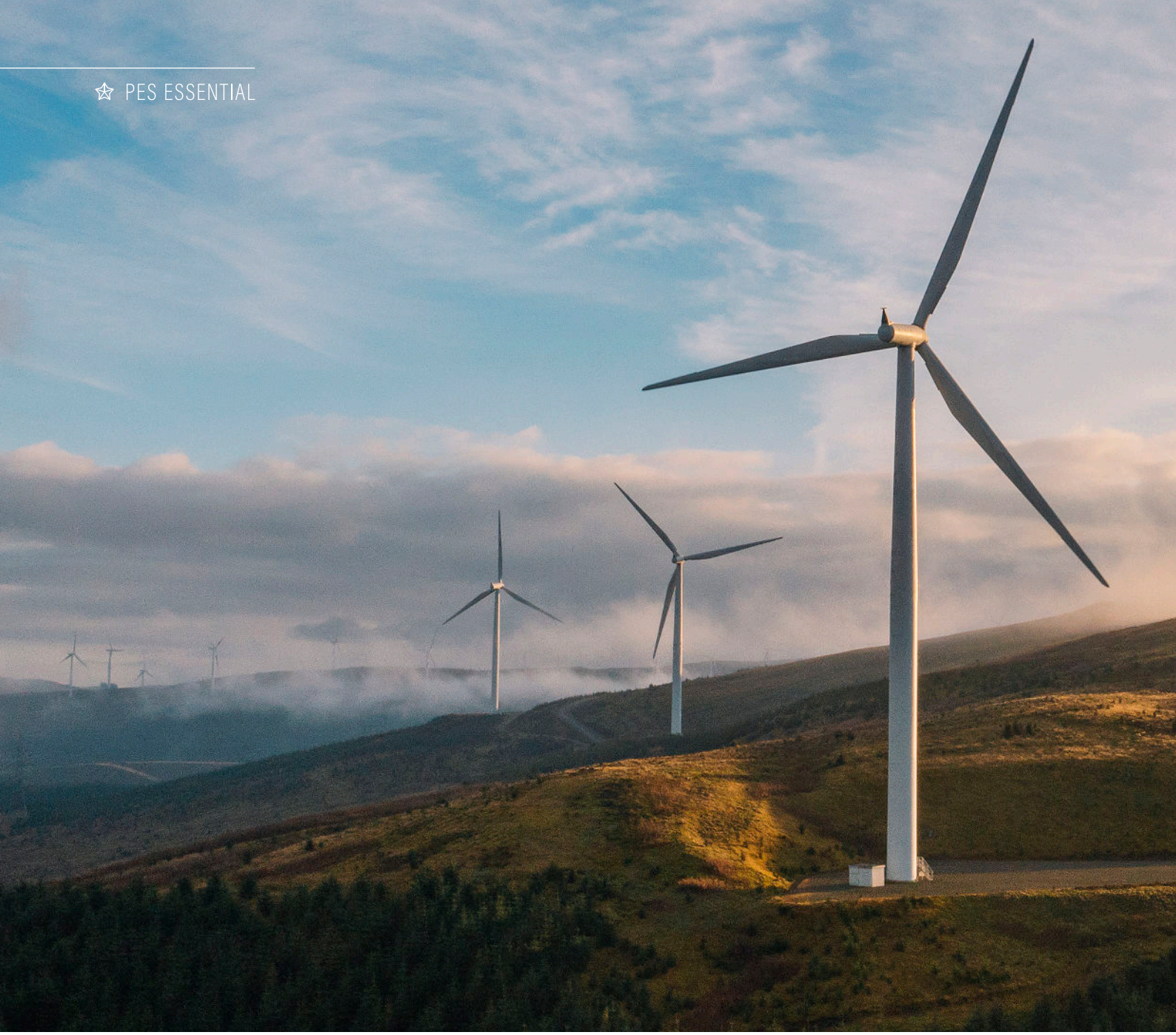
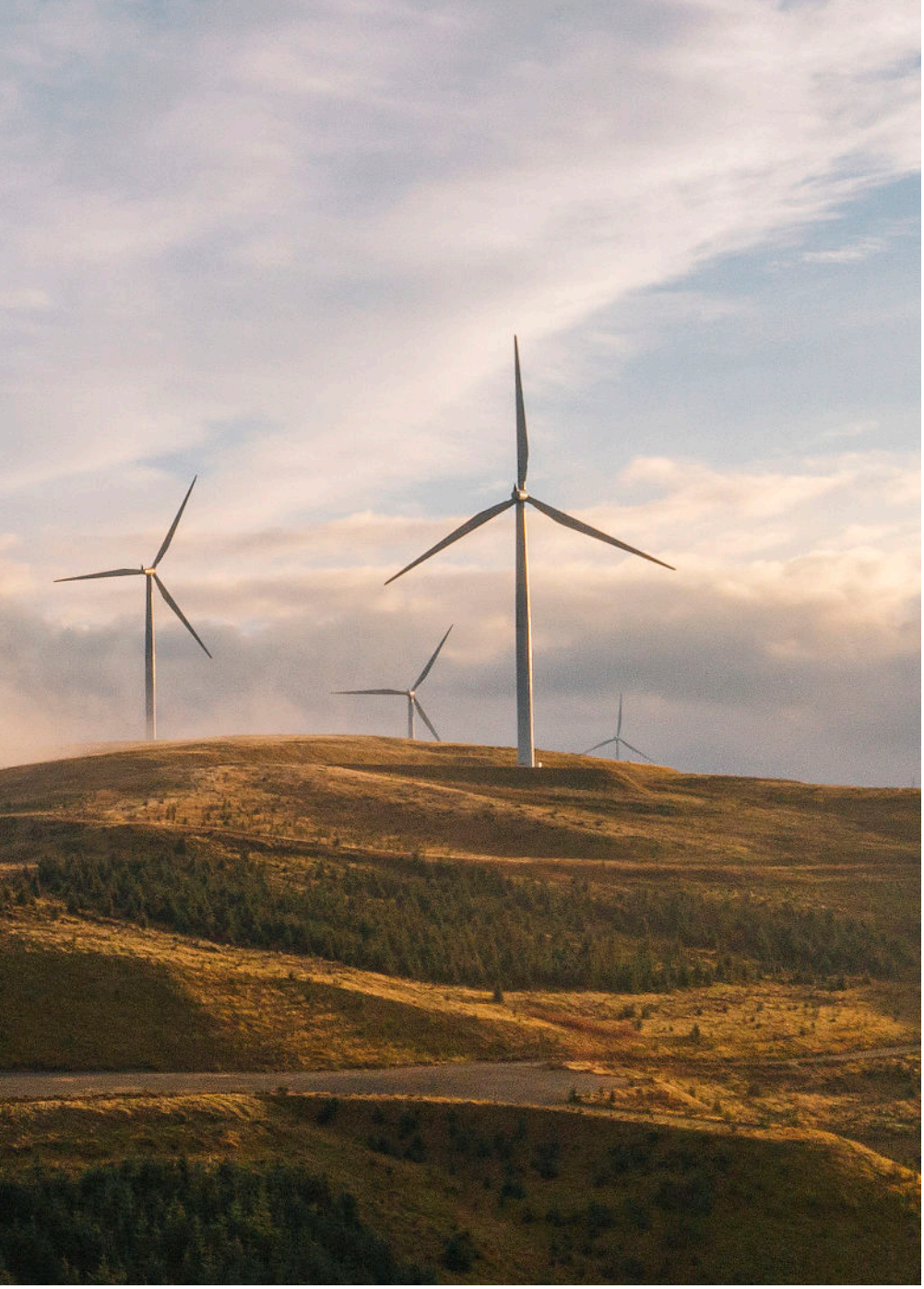


Going for gold in the race to clean energy

Words: Laura Fleming, Country Managing Director, Hitachi Energy, UK & IE

Achieving the UK's 2030 power sector decarbonisation target means tackling multiple challenges across energy generation, transmission, and storage. Success depends on aligning supply chains, building skilled work forces, and engaging communities to create a sustainable, secure, and decarbonised future.



The 2030 power sector decarbonisation target could be considered a tall order. Many have presented multiple challenges and highlighted comparisons with previous offshore wind aspirations. But it's different this time, and there is a new-found energy towards making it a reality.

Like the Olympic games, there are a plethora of goals and events; from energy generation, transmission and distribution, and storage to wind, solar, and the digitalisation of the grid. As a sector, we are all running in different races, but only through collaboration can we all succeed. Akin to a relay race, the private sector, governments, and others must all work together to achieve gold. Central to this is focusing on three key areas: supply chains, communities, and skills.

That is securing local supply chains, bringing communities on board with projects, and having the skills and people to deliver. Aligning these three areas is key to securing gold.

Everything achieved so far has set the foundations for a net zero power system by 2030, which is the UK government's target.

Setting the scene: the state of play

The transition to net zero is well on the way in the UK. The country recently closed its last coal power plant, hit 30 gigawatts (GW) of wind development, and launched a National Energy System Operator (NESO) to oversee the UK's electricity and gas systems as we move towards net zero. Critical for this progress is electrification. The focus is now on ensuring the growth matches new energy from renewables in the electricity grid.

The closure of the last coal plant in September 2024 signified that the era of fossil-based energy generation in the UK is over, although fossil fuels will still be in use in transport and other industrial sectors. The torch has been passed on to a period of electrification driven by renewable energy and a need for secure, low-cost, reliable, and sustainable electricity. Something fossil fuels can no longer guarantee; something highlighted by global energy price hikes in 2022.

To accelerate the shift, the new government has set out ambitious and accelerated energy targets to meet the UK's electricity needs; a fully decarbonised power system by 2030, double onshore wind, and quadruple offshore wind capacity by 2030, backed by a global need for security and the availability of a growing supply.

The NESO will help establish the transmission system, which will be robust and interconnected enough to move energy across the country. This will be no walk in the park. According to National Grid, By 2050, the system will need to transport double the amount of electricity compared to today[1].

The future is undoubtedly clean energy, which is essential for climate action and reducing consumer costs. At Hitachi Energy, we already support and enable the connection of Dogger Bank Wind Farm, Hornsea, the North Sea Link connecting the UK and Norway, and Shetland to the mainland UK grid, amongst others.

Globally, we've enabled over 150 GW of high-voltage direct current (HVDC) connections since 2020. That's enough to power all of Japan. We now stand ready to support further decarbonisation and deploy our technology, such as the EconiQ™ portfolio of SF6-free solutions, stripping the world's most polluting greenhouse gas from critical energy infrastructure. The portfolio offers a range of products that eliminate this gas, including SF6-free switchgear and transformers.

Overcoming the hurdles: supply chain and investment

As we prepare for the Olympics, we need to look at our equipment. Do we have the technology to win races? The UK must be more attractive to investors compared to competing countries. It must be as low risk as possible, with investors willing to sponsor the athlete, or in this case, the UK and the government's long-term commitment, solid enough to make 2030 a reality.

And this involves overcoming hurdles. These hurdles come as barriers to developing renewable energy infrastructure. Unlocking these blocks and leaping these hurdles are, therefore, vital to providing long-term certainty to businesses to enable them to invest and accelerate the deployment of projects, helping accelerate from planning to completion.

This is a global competition, and we must make the UK attractive for investment. Regulatory and political certainty are critical to this. The Contracts for Difference (CfD) should retain its effectiveness, as the government has currently done, and we need certainty on changes to the electricity markets. The sooner the review can be concluded, the better.

But what does this mean for our supply chain? The trainers, supporters, and

sponsors must partner with the athletes through each stage of the race. Once we have global investment and local investment in the UK, we can build our supply chain. Technology, people, and, crucially, manufacturing could be deployed locally. This would create thousands of jobs and reduce our reliance on global supply chains, enhancing the UK's energy security.

To make this a reality, we need all the constituents in the supply chain to collaborate, learn from each other, and share and build the best solution. This interconnectivity and collaboration is critical to bringing certainty to our energy future.

At Hitachi Energy, we are working with key partners to use a programmatic approach, using best practices from our experience globally. This makes procurement much easier through long-term agreements over a programme of projects rather than individual ad hoc projects and is akin to a long-term coaching partnership helping us continue to win gold in subsequent Olympic games.

For example, last year, Hitachi Energy signed a framework agreement with SSE to provide HVDC technology to transmit wind power from Scotland to the south. Similarly, jointly with Aibel, we recently signed a capacity reservation agreement with RWE that reserved engineering and production capacity to develop three major HVDC projects.

Skills

More important than anything is people. We need the right skills and the right people to deliver these projects. We need the athletes, the coaches, the trainers, the swimmers, riders, players, and participants. To do this, we need to inspire people of all ages to join the industry. This will enable us to make the most of this enormous opportunity.

The employment opportunities before us are staggering. National Grid estimates 400,000 additional roles will be needed by 2050, including 260,000 new roles[2], while the Climate Change Committee estimates between 135,000 and 725,000 net new jobs in low-carbon sectors by 2050[3]. But this is not a given.

At Hitachi Energy, we are leading the way in attracting the next generation of athletes. Our Power+ Graduate Program offers a unique start to careers, taking students on three six-month rotations across the business. Similarly, our Diversity 360 program puts diversity and inclusion at the heart of our hiring process as we aim to increase female diversity in leadership roles to 25% by 2025.

Communities

To succeed more widely in wind and energy transitions, we need to bring communities with us on this journey. Communities, the public, the spectators, and people generally will need to buy into their 'champion,' assured that the energy transition is going to happen and it's going to benefit them with affordable and sustainable energy.

This is also a psychological race. Bringing these communities along on the journey is critical to enabling the swift development of new projects, from developing wind farms to building the networks needed to bring electricity into people's homes. One way we have tried to engage with communities is through our partnerships with Edinburgh Science and the Festival of the Girl to change how people think about STEM subjects, seeking to educate people on the opportunities across the energy transition.

Conclusion

Overall, the industry is taking a positive approach. We want to bring home gold. We want to boost our economy and build a manufacturing industry that provides local jobs, community, and economic growth and development. We want to create sustainable energy and new skills and offer future generations diverse, equitable, and inclusive opportunities.

And so, when we come to the race itself, the first leg is about commitment and collaboration with key partners and having the correct equipment. The second is overcoming hurdles and attracting global investment through a suitable climate.

The third is to bring communities together to support the terraces. The final leg delivers to the finish line by creating the links between renewables and the grid to pass on the baton.

Providing we can achieve all these, we can strive for gold and collectively reap the benefits together.

www.hitachienergy.com

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