

Sustainability beyond the turbine: building the workforce for wind's future

As demand for skilled technicians continues to rise across the wind sector, the real challenge is no longer simply attracting talent. It is building the skills, experience and career pathways the industry will need for decades to come.

The renewable sector continues to expand, with wind farms becoming larger, more complex and increasingly critical to the global energy transition. Yet the workforce needed to support that growth is not keeping pace.

The challenge is significant. According to the latest Global Wind Workforce Outlook from the Global Wind Organisation (GWO) and Global Wind Energy Council (GWEC), the industry needed around 475,000 technicians globally in 2025 across construction, installation and operations and maintenance. By 2030, this requirement is expected to reach 628,000, meaning the industry will need to add more than 150,000 technicians in just five years.

At the same time, the experienced technicians who helped build the sector are progressing into leadership, management, consulting and other areas, while demand for new talent continues to increase. The solution cannot simply be to attract more people into wind. It must also be to create an industry where they can develop, progress and build long-term careers.

Building experience in a young industry

Compared with established energy sectors such as oil and gas, wind energy is still

relatively young. Oil and gas have spent decades developing apprenticeships, competency frameworks and structured career paths capable of supporting increasingly complex technologies. They have also created an environment in which people can build long-term careers and transfer their experience as their roles evolve.

There is significant overlap between the skills required across both industries, including mechanical and electrical expertise, working at heights, high-voltage systems, offshore operations and confined-space work. Many of the technicians who helped establish the modern wind energy industry came from these adjacent sectors.

Today, a significant proportion of that first generation is 10, 15 or more years into their careers. Many are naturally progressing into leadership, management, consulting and other areas of the industry.

At the same time, installed wind capacity continues to grow. The result is a widening gap between the experienced professionals available and the number the industry needs.

The European picture illustrates the extent of this growth. WindEurope's latest workforce report estimates that the







European wind sector currently supports 443,000 jobs, rising to 607,000 by 2030. The report also identifies 235 job profiles across the wind farm lifecycle, highlighting the breadth of skills required to support the sector's expansion. That gap cannot be solved simply by moving experienced technicians from one company to another.

The tipping point

When a relatively small pool of experienced technicians is supporting rapidly increasing demand, competition for skilled people becomes inevitable. Companies compete to attract and retain the same individuals, creating pressure on salaries, retention and workforce stability.

However, continually redistributing existing talent is not a sustainable long-term workforce strategy. The industry needs to create opportunities for people who are new to wind while giving existing technicians clear reasons to stay, develop and progress. Building the workforce therefore needs to become a shared industry priority rather than a competition between individual companies.

What is missing?

The wind industry has made significant progress in developing technical standards, training and certification. However, there is still work to do in creating clear and visible career pathways.

People entering wind should be able to see how they can develop from technician into senior technical, supervisory, specialist, project management and leadership roles. They should also have opportunities to develop skills across different technologies and services rather than becoming limited to a single role or area of expertise.

For experienced technicians, career development is equally important. Opportunities to diversify their skills, take on greater responsibility and move into new areas of the industry can help retain valuable experience and knowledge.

These issues matter because people do not only leave companies. Sometimes, they leave industries because they cannot see where their careers can go next.

Training therefore needs to become a shared responsibility across the supply chain rather than something the industry relies on the market to provide. This requires greater investment in training facilities and skills pipelines, alongside competency frameworks that are recognised across multiple turbine platforms, rather than limiting technicians to a single manufacturer or technology.

The extent of the skills gaps identified in Europe demonstrates why this is necessary. WindEurope estimates that, before 2030, Europe will need approximately 7,000 blade technicians, 6,500 field engineers and 5,000 preassembly technicians. Eight out of ten of the critical roles facing the largest shortages are expected to rely on vocational education and training.

Stronger partnerships with regional training initiatives, apprenticeship programmes and educational institutions can help build local talent where the work is actually taking place. Technical training also needs to become more accessible, with opportunities for technicians to develop skills beyond the minimum requirements of their current role.

Companies also need to take a broader view of what they can offer their people. Organisations operating across multiple service areas can provide opportunities to gain experience across different technologies, projects and disciplines. This can include moving between onshore and offshore work, gaining experience across installation, commissioning, inspection and maintenance, or progressing from technical delivery into supervision, engineering or project management.

Creating these pathways gives people more opportunities to develop within the industry rather than simply move from one job to the next. For employers, this can improve engagement and retention, broaden technical capabilities and support the development of future industry leaders.

Looking beyond today's project

When customers choose a supplier, they are not simply considering who can deliver a project today. They are increasingly looking at a supplier's ability to maintain the necessary expertise, capacity and technical capability over the long term, particularly as wind farms grow and assets become more complex.

A supplier's workforce is ultimately part of its capability. Companies that invest in training, multi-skilling and long-term career development are not simply strengthening their own organisations. They are building stronger and more resilient partnerships with customers through greater continuity, technical depth and experience.

Developing people is therefore not separate from delivering quality service. It is part of the capability that customers are buying.

Building the workforce we need

The future of wind energy depends not only on larger turbines, new technologies and continued investment. It also depends on



having the skilled people needed to build, operate and maintain them.

At Muehlhan Wind Service, workforce development is an important part of how the company approaches both its growth and role in the wider wind industry. This includes creating opportunities for people to enter the sector, develop their technical skills, gain experience across different technologies and service areas and progress into new roles over the course of their careers.

Operating across multiple markets and service areas can give employees opportunities to develop experience across different technologies, projects and disciplines. This creates greater flexibility for employees while strengthening the technical capabilities available to customers.

The size of the skills challenge means that no single company can solve it alone. It requires collaboration across the industry, including manufacturers, service providers, asset owners, training organisations, educational institutions and policymakers.

However, every company has a role to play. For Muehlhan Wind Service, that means continuing to invest in people. The objective is not simply to have the right people for today's projects, but to help build a workforce with the skills, experience and career opportunities needed for the wind industry of tomorrow.

The future of wind depends on the people who will deliver it. Building that workforce is a responsibility we all share.

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