Bridging the cable gap: tackling offshore wind's infrastructure pressure

From high-voltage jointing to fibre-optic testing, the demands on offshore cabling have never been greater. As developers face tighter timelines and deeper technical challenges, Onken Offshore Contractors outlines how evolving delivery models and skilled integrated teams are helping the industry adapt.

As offshore wind projects scale across Europe and beyond, the industry continues to break new ground technologically, geographically and in terms of ambition. Turbines are larger, located further from shore and more interconnected than ever. But behind this visible progress lies an infrastructure challenge that is growing harder to ignore.

Cabling, both onshore and offshore, is becoming one of the most complex and risk-sensitive components in wind energy delivery. Onken Offshore Contractors GmbH has spent the past year expanding its capacity and refining its operations to meet the increasing demands of the offshore wind sector. This has not been about growth for its own sake, but a direct response to the problems developers face in delivering critical infrastructure at scale.

With project timelines tightening, regulatory pressure mounting and skills in short supply, the need for a more integrated and agile cable delivery model has never been clearer.

Cable complexity and the hidden risks

Offshore wind infrastructure continues to evolve, but cable systems have become a clear pinch point. High-voltage export cables now span longer distances, cross more challenging terrain and operate under stricter performance and environmental requirements. Fibre-optic links and transition joint bays introduce further complexity.

When cable systems are not given the planning priority they deserve, the consequences are costly. A single joint failure or fault can delay commissioning by weeks and require extensive offshore intervention. Even routine testing or documentation lapses can trigger project-wide issues if not caught early.

Onken has supported a number of high-profile offshore wind projects where rapid mobilisation and in-house diagnostics were critical in avoiding prolonged outages. However, the lesson from these experiences is not just that response matters. Prevention, driven by integration and foresight, is even more important.

Moving beyond fragmentation

Traditionally, cabling work has been split across multiple subcontractors. One team might handle jointing, another testing, another documentation and another project management. While this approach may have worked in earlier, smaller projects, it often introduces risk in today's more complex landscape.

Onken has positioned itself to offer a more cohesive model. By combining engineering, high-voltage jointing, fibre-optic work, fault location, testing and project documentation in-house, the company removes many of the interface issues that lead to delays or misalignment on site.

This full-lifecycle capability allows for faster decision-making, better quality control and greater flexibility when scopes shift. For developers and EPC contractors under pressure to meet grid deadlines or recover lost time, working with a cross-functional team that can adapt in real-time is proving to be a clear advantage.

The company's expanded office facilities, added in the past year, support this model by bringing together technical, project and administrative teams in one location. The goal is to enable better coordination, faster response and higher service quality across all stages of a cable project.

The sector's skills gap is widening

Across Europe, the offshore renewables sector is facing a well-recognised challenge in the shortage of skilled labour. High-voltage cabling in particular requires a combination of technical expertise, field experience and certification that is becoming increasingly difficult to source at scale.

Onken has addressed this issue by growing its team strategically, increasing headcount by 193 percent over the past year and investing in continuous training. The company now includes experts in offshore electrical systems, fibre-optic technology, project management and compliance, all supported by structured onboarding and certification pathways.

Staff receive training in GWO offshore safety standards, high-voltage cable systems, fault location techniques and marine operations. This ensures they are not only technically proficient but also prepared to work in demanding offshore environments.

This commitment to capability building is not just about meeting current client needs. It reflects a recognition that as offshore wind projects become more ambitious, the ability to deliver safe, precise and compliant work will be central to long-term sector resilience.

Compliance as a core competency

With more scrutiny from regulators and stakeholders, compliance is no longer a background concern. Offshore wind developers now expect full transparency in quality assurance, safety procedures and environmental practices from early-stage planning through to final project documentation.

Onken's operational systems are built around internationally recognised standards. The company holds ISO 9001 for quality, ISO 14001 for environmental management and ISO 45001 for occupational health and safety. These are not just formalities but integrated systems reinforced through internal audits, procedural reviews and regular training.

Offshore-specific training is required for all field staff, with a particular emphasis on high-voltage safety and environmental protection in marine environments. The company's in-house documentation and testing capabilities ensure that compliance is embedded into the project from day one.

In a regulatory environment that demands traceability and transparency, this level of preparation enables clients to reduce project risk and improve overall assurance.

Infrastructure requires smarter execution

Onken's experience on international projects has shown that the offshore wind sector is entering a phase where speed alone is not enough. What matters is the ability to deliver with certainty, knowing that systems have been installed, tested and documented to the highest standard.

A typical Onken cable project begins with early engagement in design and engineering. This allows the company to assess technical needs, identify potential constraints and advise on optimal solutions. When execution begins, Onken deploys tightly coordinated teams equipped with in-house testing, fault location and documentation tools.

The advantage of this model lies in its responsiveness. When something changes, there is no waiting for external contractors or clarification across supply chains. The team has the expertise and authority to adapt quickly, minimising delays and maintaining quality.

This level of integrated delivery is becoming essential as projects grow in size and complexity. Onken's collaboration with industry leaders such as Ørsted, Prysmian, Semco and Seaway 7 reflects a shared focus on reliability and technical excellence.

Looking ahead

To keep pace with growing demand, Onken is planning further expansion. While Germany remains a central base, the company is increasingly supporting projects across the North Sea and into other emerging offshore wind markets.

One area of development is the potential creation of a second operating entity outside Germany to better support international client frameworks. At the same time, Onken is continuing to invest in digital cable services, including condition monitoring, predictive diagnostics and advanced fault detection.

These innovations align with a wider industry trend towards smarter, more data-driven maintenance strategies. By anticipating failures before they occur and shortening resolution time, developers can extend asset lifespans and reduce costs.

Conclusion

Cabling may not be the most visible element of an offshore wind farm, but it is one of the most critical. As the sector grows in complexity and scale, the infrastructure that connects it all must evolve. Onken's work over the past year reflects a wider shift in how the industry approaches cable delivery, prioritising integration, compliance and skilled execution.

This goes beyond market pressure, it reflects a sector-wide shift. It is a recognition that as offshore wind becomes a cornerstone of the global energy system, its foundations, quite literally, must be stronger than ever.

onken-offshore.de/?lang=en