

PROFILE

STORMGEO

FORECASTING FOR THE OFFSHORE ENERGY MARKET

Floating wind turbines being prepared to sail off. (Courtesy: StormGeo/ iStock)

StormGeo provides advanced weather information and forecasting to support both daily operations and long-term planning in the construction and operation of offshore wind-energy projects.

By **KENNETH CARTER** ▸ Wind Systems editor

Designing and building massive offshore wind structures involves an enormous amount of planning and data-gathering in order for the assets to start generating power.

But some variables can't be controlled, only monitored — specifically, the weather. That's where the experts at StormGeo stand at the ready to make weather conditions less of a surprise at best, and predict potentially dangerous conditions at worst.

“Our goal is to help the wind industry maximize efficiency, reduce costs, and ensure the safety of operations through precise weather information,” said Linn Berge Olsen, global industry manager for offshore wind with StormGeo. “We provide a range of services tailored to support the offshore wind industry. Our key offering is weather forecasting and decision support. We deliver accurate and timely weather predictions, which is crucial for planning and operational decisions. This includes short-term forecasts for daily operations and long-term forecasts for project planning. In addition, we deliver customized services like forecasting vessel response by combining advanced meteorology and hydrodynamics to help optimize vessel performance. Also, StormGeo offers tailored early warnings and alerts to enhance proactive asset and personnel safety — all supported by our fully operational forecasting desks providing meteorology expertise and the most accurate and reliable weather information.”

SUPPORTING CLIENT OPERATIONS

Offering this vital service is key to StormGeo's ability to help its clients operate efficiently and free of incidents that could hinder the construction of a wind farm, according to Olsen.

“We provide advanced weather information and decision support services to help clients unlock the value of data and navigate in a changing environment,” she said. “Our core values include passion, integrity, bravery, and innovation, and they drive our commitment to delivering high quality weather intelligence all around the globe to weather sensitive industries. That's the philosophy behind StormGeo. Our approach — which we think distinguishes us from our competitors or more publicly available sources — is that we combine technological innovation with human expertise so we can deliver reliable and effective solutions.”

What that means is that 24/7 operational support comes with an essential human factor, according to Olsen.

“As our client, you always have a person at the end of the line you can talk to — it's not just pure weather models and machine computation,” she said. “Keeping this kind of expertise going forward is also going to be a challenge, since data is getting better and better and becoming more available. The key going forward is gathering and utilizing

different information and data effectively. In addition to having the best weather models available, our trained meteorologists understand the strengths and weaknesses of these models and know which one to apply in various situations. We maintain that crucial human element, which many of our competitors lack to the same extent.”

GLOBAL FOOTPRINT

StormGeo's presence can be felt in all parts of the world, especially when it comes to offshore wind, according to Olsen.

“We are well established in Europe and expanding,” she said. “We have been forecasting for over 25 years, 16 of those specifically for the offshore industry. We were first movers into the U.S and Taiwan and are also quite active in other expanding new markets like Vietnam, Japan, and Korea. Australia is another exciting new market for offshore wind energy, with several projects in the pipeline.”

With its varied operations all over the world, it's important that StormGeo continues to evolve with the industry, according to Olsen.

“We have evolved alongside the industry by continuously innovating and expanding and even adapting our services to meet the changing needs of the sector with advanced weather forecasting,” she said. “We have sophisticated weather forecasting tools that provide accurate and timely information, which is going to be even more crucial considering climate change in the future. This is important information for the planning, installation, and maintenance of an offshore wind farm.”

INNOVATION AND MACHINE LEARNING INTEGRATION

Part of that strategy is implementing AI and machine learning integration, according to Olsen.

“Using machine learning in our operational forecasting is not new to us,” she said. “We already started this process a decade ago, so we're deep into it, and I would say we are a market leader in that respect.”

One of StormGeo's key innovations is the DELFI system (Deep Learning Forecast Improvement), which uses machine learning to improve the accuracy of weather forecasts.

“In term of innovation, we expand our expertise,” she said. “For instance, by applying severe weather forecasting and hurricane forecasting expertise from our U.S. team to new markets like Asia, this demonstrates a strategic use of specialized knowledge, addressing region-specific weather challenges.”

Olsen refers to this as customizing solutions for offshore wind.

“Given the industry's relative novelty, the challenges and requests we encounter are unique, but we are adapting



StormGeo's presence can be felt in all parts of the world, especially when it comes to offshore wind. (Courtesy: StormGeo/Unsplash)

quickly by providing enhanced weather risk assessments,” she said. “We tailor our decision support tools to be more individualized. Additionally, we collaborate with industry leaders, offshore developers, operators, and even competitors and various data providers. In some regions, we cooperate; in others, we compete. Flexibility is key depending on the market.”

WORKING WITH A CLIENT

Even though StormGeo adapts to the needs of its clients, it starts with a solid foundation, which gives Olsen and her team the ability to make adjustments as required.

“We sell off-the-rack solutions and build volume, which also gives us room to develop tailor-made services,” she said. “We adopt a very customer-centric approach. When clients come to us with a challenge, we collaborate closely to provide solutions. First, we need to understand their requirements; we assess this before potentially developing and proposing a solution. Our customer services are designed to meet specific needs, but they must be effective and relevant to the industry needs. When we first started working with offshore wind, we used to do more one-offs. Now we take a more holistic approach, tailoring our services to be more industry specific. Providing these services, we offer round-

the-clock support to ensure clients have access to expert advice and solutions whenever needed.”

TV BEGINNINGS

Although StormGeo now has a significant global weather-forecasting presence for hundreds of international offshore wind farms, the company began in 1998 as a collaboration between Norway's largest commercial broadcaster at the time and Siri Kalvig, a well-known Norwegian meteorologist. Soon after, StormGeo delivered its first weather service to a hydroelectric power company and then to its first offshore energy company. In 2014, StormGeo doubled in size, acquiring the American weather service provider, Applied Weather Technology. That acquisition made StormGeo the world's largest weather forecasting company for the shipping and offshore industries. Over the years, StormGeo has continued to grow through various acquisitions that include Met Consultancy in the Middle East, Impact Weather in the U.S., Nena Analysis in Norway, and Climatempo in Brazil. In 2021, StormGeo was acquired by Alfa Laval's marine business division. This acquisition enabled StormGeo to leverage Alfa Laval's expertise in marine operations and also aligns with StormGeo's strategy to provide environmentally friendly marine solutions.



Wind farm field with supply boats. (Courtesy: StormGeo/iStock)

These acquisitions have collectively strengthened StormGeo's global presence, diversified its service offerings, and enhanced its ability to provide precise and reliable weather intelligence across various industries and regions, according to Olsen.

GLOBAL LEADER

"StormGeo has transformed from a weather news channel to a 750-person global leader in weather intelligence," she said. "And now, we're part of Alfa Laval, which is a new chapter in our growth and integration into a larger organization. We still maintain our entrepreneurial spirit, but we recognize the need to adapt our mindset as we become one of the major players in the industry." Currently, StormGeo has 26 offices worldwide with 4,000-plus customers, according to Olsen, supporting about 150 offshore wind farms.

"This makes us contribute to the generation of renewable energy for millions of homes," she said. "We proudly support major industry players like energy companies, service suppliers, and leading marine contractors globally. We deliver essential weather insights that enhance safety and efficiency in operations. Our commitment to innovation, deep learning, forecasting, and a customer-first approach remains unwavering. Today, we hold a strong position, and we are a

trusted partner in the energy maritime sector today."

KEEPING AN EYE ON THE CHANGING CLIMATE

With the changing global climate, Olsen said predicting major weather events will be a challenge, but StormGeo is up for the task.

"The forecasts are continually improving, making it increasingly difficult to justify the human factor, as they are costly and prone to errors," she said. "We are facing new competitors and entrants we haven't encountered before, which presents its own challenges. But the offshore wind industry is expected to continue its rapid expansion over the next decade. With the advancement in technology, increased investments, and strong political support — despite some exceptions — the industry will remain crucial in the global shift to renewable energy. StormGeo has a deep industry expertise in this sector, and we're committed to innovation and sustainability. I am confident that this will ensure we remain a key player in weather intelligence. We're well positioned to lead in the adaptation of AI and machine learning technologies, allowing us to leverage our expertise and continue providing cutting edge weather intelligence." ✎

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