

# THE NEGLECTED HAZARD

A GUIDE TO DROPPED OBJECTS RISKS  
IN OFFSHORE WIND



Dropsafe's white paper shows that dropped objects are an ever-present, increasing threat to safe and cost-effective project development and operations in offshore wind. (Courtesy: Dropsafe)

separate figures.

At the same time, best practice mitigation guidance for offshore wind firms remains limited. Indeed, in the 2018 G+ Working at Heights guidelines, end operators are encouraged to refer to the global dropped objects organization, DROPS, for further guidance. This DROPS guidance has yet to be officially published and ratified.

While the data isn't, therefore, always clear cut, in its 2017 figures,

the IMCA has reported a downward trend in lost time injuries (LTIs) from dropped objects – but this must also be factored against an overall decline in working hours across the industry.

Figures from the G+, conversely, show an increase in the total rate of recorded dropped object incidents that is 3.5 times that from the IMCA, and an overall uptick in incidents from 2015 to 2017.

"In offshore wind, a tough and un-

forgiving environment, reputation is key," said Mike Rice, commercial director of Dropsafe. "And in order to maintain current growth and industry momentum, it is the responsibility of businesses throughout the supply chain to consistently demonstrate that an offshore wind farm is not just a clean, reliable source of power, but also remains a safe place to work, all the way through its lifecycle."

"The industry is under pressure to keep a lid on costs, but this approach in pushing toward a lower levelized cost of energy cannot come at the expense of health and safety best practice," he said.

"Our experience from the offshore oil and gas markets shows that dropped objects present a fourfold threat to the safety of personnel, the integrity of equipment, financial performance, and ultimately the reputation of offshore wind firms and their high-profile stakeholders," Rice said. "Yet, despite this ever-present threat, the offshore wind industry has yet to follow the lead of other marine industries, both in reporting incidents, and in adopting robust mitigation measures across turbine and vessel fleets. This ultimately puts the sector at risk of having uniform regulations and standards imposed upon it that jeopardize its ability to manage long-term costs in a sustainable manner."

MORE INFO [www.dropsafe.com](http://www.dropsafe.com)

## MANUFACTURING

### Siemens Gamesa awarded order for Kansas project

Siemens Gamesa Renewable Energy will supply 48 SG 3.4-132 and 14 SWT-2.3-108 wind turbines for Southern Power's latest wind project – the 198.5-MW Reading wind facility in Lyon and Osage counties in Kansas.

The agreement also features a 20-year service and maintenance program. Known for its world-class

maintenance solutions, Siemens Gamesa will offer the company the best in scale and flexibility to maximize energy asset returns. The program includes advanced diagnostics and digital capabilities, tailored to increase performance and operation predictably to achieve low cost of energy for customers.

“We are pleased to partner with Southern Power for the Reading Wind project, and we are committed to upholding the highest standard of safety, availability, and reliability that we are known for providing,” said Darnell Walker, head of Service Americas at Siemens Gamesa Renewable Energy.

In total, Siemens Gamesa has provided turbines for more than 150 project sites with an output capacity of more than 18 GW in the U.S.,

enough energy to power more than 5 million average homes and has a strong U.S. footprint consisting of manufacturing, service, and offices. In Kansas, Siemens Gamesa has 484 wind turbines installed across nine projects totaling more than 1,000 MW. Southern Power has previously partnered with Siemens Gamesa on four other wind turbine project installations totaling more than 300 turbines, totaling about 720 MW installed and under service.

A total of 2,397 SWT-2.3-108 wind turbines have been installed in the U.S., accounting for 5.5 GW of installed capacity across 31 projects. The first SG 3.4-132 wind turbine for the U.S. was completed in August 2018. This product features an output of 3.465 MW and a rotor diameter of 132 meters. These turbines are op-

timized for Class II sites to maximize energy production with low noise emission levels.

**MORE INFO** [www.siemensgamesa.com](http://www.siemensgamesa.com)

## MANUFACTURING

### BladeFactory project: Quicker production, higher quality result

Together with 14 project partners, Fraunhofer IWES, in the role of coordinator, recently launched the BladeFactory project. The research project, which has been funded by the German Federal Ministry for Economics Affairs and Energy (BMWi) to the tune of 7 million euros, is set to last 3 1/2 years.



An SGRE wind farm. Siemens Gamesa will supply a total of 62 turbines for Southern Power's latest wind project. (Courtesy: Siemens Gamesa)

During this period, IWES researchers will develop and test production methods with the aim of reducing the production time for rotor blades. To this end, the team is working to parallelize production steps. In addition, a 3D laser measurement system, which is suitable for assuring the quality of blade production, will be tested for the first time. Development work will be performed at IWES' demonstration center for industrialized rotor blade production in Bremerhaven, Germany. This site was established within the framework of the preceding BladeMaker project.

Using the technology presently available, it takes about 24 hours to produce a rotor blade blank. The process is protracted since almost all production steps must be performed one after the other in the main mold tool.

"To shorten the production time, we want to perform various processes simultaneously and move some of the work away from the main mold tool to other devices," said the project's manager Roman Braun. This includes procedures such as preforming (placement and draping of the textile and core materials) and prefabbing (pre-production of rotor blade components).

Another goal is quality enhancement: In order to achieve greater, reproducible component quality, the researchers at IWES rely on measuring technologies and mechanical tests during the manufacturing process. In addition, the use of a laser measurement system is planned, which will precisely record the 3D geometry of the finished parts.

"The introduction of robust and parallel production processes offers huge potential cost savings," Braun said. "The production procedure is rendered more efficient and material surcharges as well as reworking due to quality issues can be reduced."

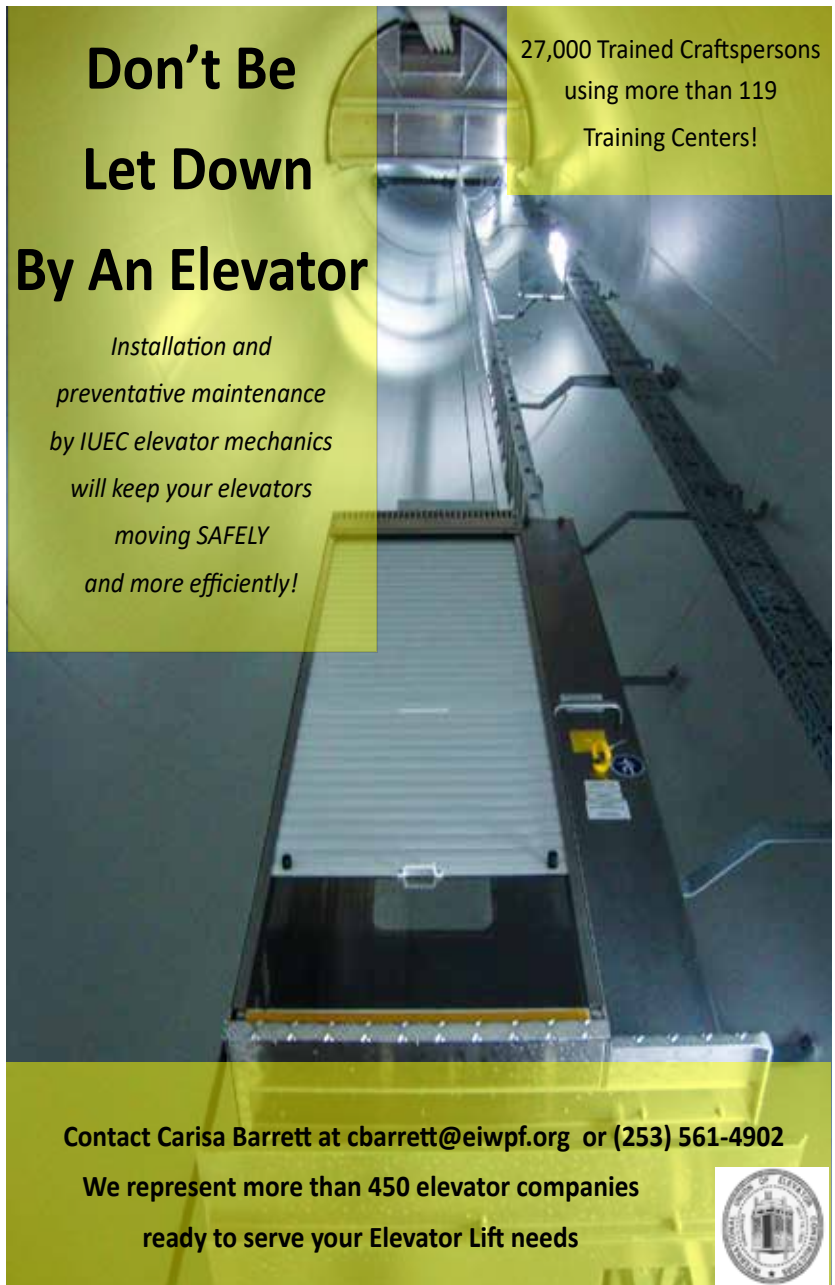
A direct production procedure for mold tools was developed in the scope of the preceding project, BladeMaker. This has reduced the production time for molds from six to three months. In the BladeFactory project, researchers now aim to use this production

procedure to create mold tools with a cooling function. This will enable the curing process to be optimally controlled and shortened, while also increasing the quality of the components. The more rapid manufacturing of mold tools accelerates the market launch of rotor blades significantly which results in a decisive competitive advantage for manufacturers.

The demonstration center is open

to project partners and industry customers. Material manufacturers, machine suppliers, and blade producers use the infrastructure and know-how offered by Fraunhofer IWES to test materials and tools for blade production, perform demonstrations to potential customers, and conduct tests according to accredited methods.

**MORE INFO** [www.iwes.fraunhofer.de](http://www.iwes.fraunhofer.de)




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Layup of pre-cut glass fiber fabrics on a positive mold to pre-manufacture the root insert. (Courtesy: Fraunhofer IWES, Jan Meier)

## MANUFACTURING

### Ingeteam opens high-tech facility for turbine components

Ingeteam, an independent global supplier of electrical conversion and turbine control equipment, recently announced it opened a new facility in the vicinity of Chennai, India, to satisfy the demand for wind-power converters and control cabinets by both local and international OEMs with operations in India.

Located in the Tamil Nadu region, Ingeteam's new 3,500-square-meter facility is equipped with state-of-the-art production technology. The production plant in India will manufacture electrical components following the same stringent standards and processes as Ingeteam's other production facilities in Spain, the U.S., and Brazil.

The new facility has been specially developed to meet the needs of a

promising and demanding market, such as India. This highly efficient, as well as cost-effective, production center is based on a modular design and can be easily modified. The production lines are extremely agile, so they can quickly be adapted to meet new client requirements. In addition, the floor space availability will enable Ingeteam to expand the facility on demand. Production at the new facility started in August, with first deliveries made in September. Serial production started in October.

"With this new plant, we are able to increase our delivery of reliable and quality products to wind-turbine manufacturers in India's extremely competitive market. The decision to manufacture locally was marked by the potential of the Indian market, by its protectionism and by the high potential of its people," said Ana Goyen, director of Ingeteam Wind Energy. "We will be there to serve our clients with the same parameters of quality, reliability, and competitiveness that have always been at the core of Ingeteam. This is a further strategic step

to positioning ourselves in this rapidly growing but legally secure market as the world's leading supplier of wind power converters."

Ingeteam entered the emerging Indian wind-energy sector early on, and now holds a 9 percent market share in the country. In 2017, a staggering 35 percent of the 4,148 MW wind capacity installed in India that year was equipped with Ingeteam's technology.

"Although the Indian wind market has slowed down due to regulatory and commercial issues, we have no doubt that it will pick up again and continue with the positive overall growth trend it has set over the past few years," Goyen said. "The fundamentals of growth are there, and this market remains a key area of investment for Ingeteam in the long run."

India is a developing country with a growing need for energy and with limited fossil resources. For this reason, the Indian government has prioritized the development of renewable energies, particularly wind and solar energy. The drastic reduction in ener-



The new facility has been specially developed to meet the needs of a promising and demanding market. (Courtesy: Ingeteam)

gy prices has demonstrated the success of this policy. The Indian market is expected to resume its fast development, as the government seeks to meet its targets of 175 GW of renewable capacity by 2022, with 60 GW of that coming from wind energy alone.

**MORE INFO** [www.ingeteam.com](http://www.ingeteam.com)

► **MANUFACTURING**

## Vestas wins 294-MW order in South African auction

Vestas’ global partner Enel Green Power has awarded Vestas a 294-MW order of V136-4.2 MW turbines, delivered in 4.2 MW Power Optimized Mode, for two projects in South Africa. The projects consist of 147 MW each and debut the V136-4.2 MW in the South African market and will feature the largest Vestas rotor diameters in Africa to date.

The two wind parks, Karusa and Soetwater, are both at the South African Western Cape and will feature 35 turbines each with a hub height of 82 meters. Leveraging the 4.2 MW Power Optimized Mode for the sites’ medium-speed wind conditions, the V136-4.2 MW will boost performance and

increase annual energy production. To lower turbine downtime and leveled cost of energy, the project will also include a VestasOnline® Business SCADA solution.

As part of delivering the projects, Vestas will create local wind-energy jobs, fulfilling the local requirements for local content, skills development, and socio-economic development initiatives.

“We are very dedicated to making a difference in South Africa and contribute to enhancing socio-economic growth and sustainable educational development,” said Nils de Baar, president of Vestas Northern & Central Europe. “We are doing so by procuring locally produced towers, contracting local transport companies, and supporting community school programs through our own initiative, the Vestas Empowerment Trust.”

Long-term customer Enel Green Power is a global developer and manager of activities for the generation of energy from renewable sources, aiming at supporting the safeguarding of the environment throughout the various phases of development, construction, and management of their plants, reducing impacts and developing the principle of the circular economy.

The contract includes supply, installation, and commissioning of the wind turbines, as well as a 5-year Active Output Management 5000 (AOM 5000) service agreement. Turbine delivery and installation is planned for the second half of 2020. ✂

**MORE INFO** [www.vestas.com](http://www.vestas.com)



The South African projects will use the Vestas V136-4.2 MW turbine. (Courtesy: Vestas)