

tinuing current strokes, managing the damage costs time, money, and resources to fix,” said Casey McCullar, head of Lightning Solutions Business for Vaisala. “Knowing precise location information for the most damaging strokes will allow investigation and repair personnel to focus on the areas with the highest likelihood of damage first, making the process much more efficient.”

“This innovation in lightning detection and reporting by Vaisala will enable electric utilities to know not only where lightning has occurred but also where damage to power systems has likely resulted,” said Theo Laughner, president of PowerGrid-RX Inc, an electric utilities consultancy. “This allows utilities to know if repairs are likely necessary before dispatching personnel, thereby reducing outage durations.”

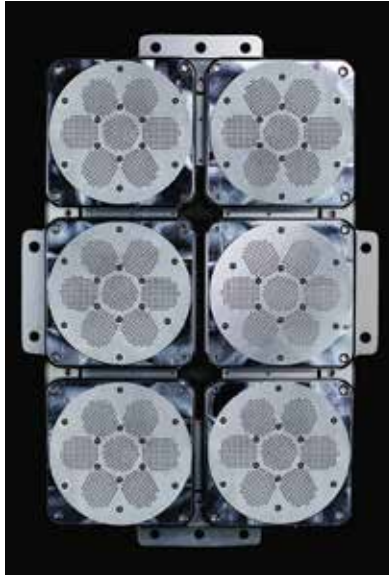
**MORE INFO** [www.vaisala.com](http://www.vaisala.com)

## INNOVATION

### Bat Deterrent System reduces fatalities by 54% at Texas facility

NRG Systems, Inc., a designer and manufacturer of smart technologies for a range of wind, solar, and meteorological applications, has announced that a trial of its ultrasonic acoustic Bat Deterrent System reduced overall bat fatalities at the Los Vientos Wind Energy Facility in Starr County, Texas, by 54 percent. The results of the test prove that NRG Systems’ technology is an effective tool for reducing mortality of certain species of bats caused by wind turbines. The Bat Deterrent System is based on “jamming” the echolocation capabilities of bats, which they rely on for orienting, foraging, and communication, while causing no harm to wildlife that encounter the treated airspace.

The test was led by researchers from Texas State University in partnership with Bat Conservation International (BCI), and involved installing NRG’s



The Bat Deterrent System from NRG Systems. (Courtesy: NRG Systems)

Bat Deterrent Systems on 16 of the facility’s 255 turbines.

“It is no secret that wind turbines cause mortality to bats,” said Brogan Morton, senior product manager at NRG Systems. “This has become an increasingly critical issue as bat populations across North America continue to decline. NRG set out to develop a technology that would allow wind developers and operators to protect bats while creating more energy more of the time. We are incredibly pleased to say that we are well on our way to making this a reality.”

“Our results from a robust, two-year study at an operational wind-energy facility in Texas indicate NRG’s acoustic deterrents significantly reduce Brazilian free-tailed bat and hoary bat fatalities,” said Sara Weaver, doctoral candidate at Texas State University, and biology lecturer at A&M, San Antonio, who led the Los Vientos study. “Based on these results, the technology is a promising tool for reducing bat fatalities at wind turbines.”

While 2018 marks three years of testing for NRG’s Bat Deterrent System, research around using ultrasonic acoustic deterrents to reduce bat fatalities at wind turbines has been underway for more than a decade. This

was led by The Bats and Wind Energy Cooperative (BWEC), an organization that BCI helped launch and continues to coordinate.

“BCI is proud to partner with companies like NRG Systems — entrepreneurs looking to reduce bat fatalities at wind turbine sites,” said Mylea Bayless, senior director of Network & Partnerships at BCI. “We hope that future testing shows continued mortality reduction in additional species and that NRG’s Bat Deterrent System will serve as a highly effective tool for wind developers and operators looking to minimize their impact on bat populations.”

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

## CONSTRUCTION

### Boskalis wins contract for Ostwind 2 grid connections

Royal Boskalis Westminster N.V. (Boskalis) has been awarded a sizable export cable installation contract for the Ostwind 2 offshore grid connection.

The contract was awarded by 50Hertz and carries a value for Boskalis in excess of 250 million euros, making this the largest cable installation contract acquired by Boskalis ever.

The contract scope comprises design and installation of approximately 270 kilometers of export cable that will connect the planned Arcadis Ost 1 and Baltic Eagle offshore wind farms to the onshore substation in Lubmin, Germany. The project is expected to begin in 2019 with a planned completion late 2022.

Boskalis will execute this contract in consortium with its partner NKT that will supply the high-voltage cable system. For this project, Boskalis will deliver an integrated solution of in-house services including supporting UXO survey, geotechnical, and geophysical surveys (through Boskalis subsidiary Gardline), seabed preparation works, pre-lay run, transport, and installation of the 220kV export cables



The contract scope comprises design and installation of approximately 270 kilometers of export cable that will connect the planned Arcadis Ost 1 and Baltic Eagle offshore wind farms to the onshore substation in Lubmin, Germany. (Courtesy: Royal Boskalis Westminster N.V.)

and seabed reinstatement.

Boskalis will deploy a wide variety of its in-house assets including trailing suction hopper and backhoe dredgers, geophysical and geotechnical survey vessels, cable-laying vessels, and a wide range of trenching tools.

“We are very proud to have been selected for this contract, the largest cable installation contract ever for Boskalis,” said Peter Berdowski, CEO of Boskalis. “The fact that we are able to combine our dredging services, recently acquired survey capabilities together with our cable installation competencies demonstrates Boskalis’ ability to offer a unique breadth of services. We look forward to further expanding this position for our clients as the leading subsea cable installation contractor.”

Boskalis’ strategy is aimed at benefiting from key macro-economic factors that drive worldwide demand in our markets: expansion of the global economy, increase in energy consumption, global population growth, and the challenges that go hand-in-hand with climate change. This project is

related to the development of generating renewable energy due to climate change and increasing energy consumption.

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

## CONSTRUCTION

### Fengate, Longroad Energy Partners to build Maine project

Fengate Asset Management (“Fengate”) and Longroad Energy Partners, LLC (“LEP”) recently announced a co-development and financing partnership to develop and construct the 72.6 MW Weaver wind project in Hancock County, Maine.

“Fengate is very pleased to partner with LEP to further expand our renewable energy investments in the United

States,” said Greg Calhoun, Director, Infrastructure U.S., Fengate. “This investment will build and provide a new source of clean, reliable energy for Maine in partnership with the most experienced and accomplished wind-energy developer in the state.”

“We are very happy to be working together with Fengate on this important project,” said Charles Spiliotis of Longroad Energy Partners. “As we looked to the market for financing partners, their experience and team were impressive and ready to take on all the challenges that developing wind in Maine can bring.”

Fengate is a leading investment firm with a growing presence in Houston, with the two most recent hires joining from ENGIE and NRG. The Houston team specializes in energy infrastructure investing, and Fengate is expanding its renewable energy portfolio comprising wind, solar, hydro, and biomass projects across North

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America. This transaction represents Fengate's fourth clean energy co-development partnership investment in North America — the third in 2018 and the second in the US.

"Houston is a perfect location to build Fengate's U.S. energy infrastructure investment platform," said Andrew Cogan, managing director, Infrastructure Investments, Fengate. "We are committed to continue growing the Houston office due to the investment opportunities in Texas, abundance of energy infrastructure professionals, and central geographic location."

Under the terms of the agreement, Fengate and LEP will co-fund the development and construction of Weaver. The project is in late-stage development and is expected to achieve notice to proceed in mid-2019 with a commercial operations date in late 2020 and will be a new and significant source of renewable energy in Maine.

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

## MAINTENANCE

# Seacat takes lead in offshore wind vessel monitoring

Offshore energy support vessel (OESV) operator, Seacat Services, has installed an advanced remote monitoring system across its fleet of 14 class-certified catamarans. The BareFLEET system, developed by Reygar, will give Seacat Services an unprecedented level of insight into the operational performance of its vessels, enabling progressive safety and technical availability gains that benefit crews, clients, and the wider industry.

"Digitalization" of operational practices, coupling remote data collection with advanced monitoring, is gaining pace as offshore wind firms throughout the supply chain aim to keep tabs on the performance of project critical infrastructure, optimize O&M and construction procedures, extend asset lifetimes, and bring down the levelized cost of energy (LCOE).



All 14 vessels in the Seacat Services fleet have been fitted with an "always-on" data connection. (Courtesy: Seacat Services)

To date, much of this investment in digital technologies has been focused on turbines and transmission, but there is now an emphasis on leading OESV operators to match this level of sophistication with more advanced vessel monitoring approaches that enhance the value of the vital service they deliver. While monitoring of key variables such as vessel motion, vibration, navigation, and engine performance is common practice, increasing the efficiency of reporting, and pulling this performance data into one place, is essential to inform more effective fleet-wide decision making.

Seacat Services' rollout of the BareFLEET system is part of the firm's ongoing investment in the quality of the service it provides to offshore wind developers, operators, and contractors, supporting a longstanding commitment to the highest standards of safety and technical availability.

All 14 vessels in the Seacat Services fleet have been fitted with an "always-on" data connection. The BareFLEET system has now been integrated with existing sensors and equipment and will be used to monitor key variables, including navigation data, vessel motion, and the performance of engines and other critical machinery.

Seacat Services will be able to view a live feed of this data from its Fleet Operations Center in Cowes, allowing

the business to keep tabs at all times on the performance of its vessels in the field. Critical alerts — such as an engine alarm — will be flagged instantly to shore-based personnel, leading to immediate action.

As the volume of data collected by the system increases, Seacat Services will conduct trend analysis, condition monitoring, and preventative maintenance, enabling the operations team to detect and address developing faults in critical components before they result in failure or unscheduled vessel downtime.

The system will also improve the capacity of Seacat Services for efficient, regular reporting from the field. By making use of Reygar's Digital Daily Progress Report (DDPR) mechanism, Masters and crews will be able to quickly log completion of key safety procedures such as drills and toolbox talks. BareFLEET is now integrated with CrewSmart — the cloud-based crew and fleet management software Seacat Services is using — bringing all of the data required for safe, effective crew management into one place.

"We've seen the wide-ranging benefits that digitalization of operations has had for turbine owners and operators — and it's time for the vessel market to follow suit by showing a commitment to matching these higher operational standards," said Ian Baylis, managing