



The 12-MW Coastal Virginia Offshore Wind (CVOW) pilot project is 27 miles off Virginia Beach. (Courtesy: Dominion Energy)

## ► CONSTRUCTION

### Dominion completes first offshore project in U.S. federal waters

Dominion Energy recently announced the successful installation of the two turbine, 12-MW Coastal Virginia Offshore Wind (CVOW) pilot project 27 miles off Virginia Beach. The first offshore wind farm to be approved by the Bureau of Ocean Energy Management (BOEM) and installed in federal waters and second constructed in the United States was built safely and on schedule despite the worldwide impact from the coronavirus pandemic. The turbines will now undergo acceptance testing before being energized later this sum-

mer and will produce enough clean, renewable energy, at peak output, to power 3,000 Virginia homes.

Dominion Energy will apply the valuable permitting, design, installation, and operations experience from the pilot project to its proposed 2,600-MW commercial project. That project, which is the largest announced offshore wind project in North America, is on track to commence construction in 2024, and upon completion, will provide enough renewable electricity to power up to 650,000 homes.

Several Virginia-based companies contributed to the CVOW pilot project, and Dominion Energy remains committed to creating the expertise to position Hampton Roads to be a supply chain hub for U.S. offshore wind efforts.

Offshore wind generation is a vital

part of Dominion Energy's comprehensive clean energy strategy to meet standards outlined in the Virginia Clean Economy Act and to achieve the company's net zero carbon dioxide and methane emissions commitment by 2050. Ørsted is serving as the offshore engineering, procurement, and construction lead for the project.

**MORE INFO** [DominionEnergy.com](https://www.dominionenergy.com)

## ► CONSTRUCTION

### Global Wind Service finishes installation of Harvest Ridge

Global Wind Service recently finished installation at Harvest Ridge in Doug-

las County, Illinois. Vestas-American Wind Technology (Vestas) has contracted wind-turbine installation and service company Global Wind Service (GWS) to deliver crane and installation for the project. The C&I scope award included unloading, pre-assembly, erection, and mechanical completion of all turbines at the site, as well as delivery of all needed cranes and machinery for the work.

The wind farm consists of 48 wind turbines: 37 V150-4.3MW and 11 V136-3.78MW. The total capacity of the wind farm is 200 MW and is enough to power about 73,000 average households in Illinois with clean energy. The project ran over the winter and faced some challenging weather conditions as well as having to cope with the COVID-19 pandemic. But the project team and partners finished the project in safe manner.

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

## ► CONSTRUCTION

### Valley Forge & Bolt hires Rick Bailey as chief metallurgist

Valley Forge & Bolt, manufacturer of hot-forged industrial fasteners, recently welcomed Rick Bailey to the company as chief metallurgist. Throughout his more than four-decade career, he has specialized in steel, the core component of Valley Forge products. Bailey will apply his scientific and technical knowledge, as well as his leadership abilities, to Valley Forge's continued growth as the top supplier of fasteners and custom critical joint solutions.

Bailey will be involved in numerous levels of the organization, with an eye on maintaining efficient, high-quality processes. His responsibilities include creating product formulations and purchasing steel, production planning, advising on forging and heat-treating, expanding employee understanding



Rick Bailey. (Courtesy: Valley Forge & Bolt)

of product functions, and assisting with quality controls.

“My strength is in treating product creation holistically – taking raw materials and carrying them through forming, machining, and heat treating to get quality levels that customers need,” Bailey said. “My role is to turn science into practice, applying the technical side of metallurgy to improve processes. And to embrace continuous improvement so we’re always learning and better serving our customers.”

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

## ► INNOVATION

### Ventient teams with ONYX to advance its digital strategy

Ventient Energy, one of the largest European renewable power producers, and ONYX InSight, a leading provider of predictive maintenance solutions to the wind industry, are partnering to optimize output and extend the life of a large fleet of the U.K.'s onshore turbines with new technology.

As a fast advancing company with wide operational expertise and strong merger and acquisition capability, Ventient is acquiring onshore wind

assets to achieve sustainable portfolio growth and deliver greater rewards for investors. As part of a strategy to improve the reliability of its fleet, more than 300 turbines across 17 wind farms will be retrofitted with ONYX InSight's condition monitoring system (ecoCMS) advanced sensing technology and cloud-based predictive analytics, fleetMONITOR. This will enable a transition to proactive maintenance, aiming to reduce downtime and major component refurbishment costs.

With the retrofit, the turbines will be “data-rich,” enabling predictive analytics and optimized repair planning.

“Once we get the equipment installed, we can identify bearing failures routinely six to 24 months in advance of repair,” said Dr. Evgenia Golysheva, head of engineering at ONYX InSight. “To ensure efficient installation, we’ve streamlined the process and have a strong quality assurance and control process. We have piloted on several sites already to iron out any potential technical challenges and make the scale-up easy.”

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

## ► INNOVATION

### Machine learning approach produces more accurate data

Researchers at the U.S. Department of Energy's (DOE's) National Renewable Energy Laboratory (NREL) have developed a novel machine learning approach to quickly enhance the resolution of wind velocity data by 50 times and solar irradiance data by 25 times – an enhancement that has never been achieved before with climate data.

The researchers took an alternative approach by using adversarial training, in which the model produces physically realistic details by observing entire fields at a time, providing high-resolution climate data at a much

faster rate. This approach will enable scientists to complete renewable energy studies in future climate scenarios faster and with more accuracy.

“To be able to enhance the spatial and temporal resolution of climate forecasts hugely impacts not only energy planning, but agriculture, transportation, and so much more,” said Ryan King, a senior computational scientist at NREL who specializes in physics-informed deep learning.

King and NREL colleagues Karen Stengel, Andrew Glaws, and Dylan Hettinger authored a new article detailing their approach, titled “Adversarial super-resolution of climatological wind and solar data,” which appears in the journal *Proceedings of the National Academy of Sciences of the United States of America*.

Accurate, high-resolution climate forecasts are important for predicting variations in wind, clouds, rain, and sea currents that fuel renewable energies. Short-term forecasts drive operational decision-making, medium-term weather forecasts guide scheduling and resource allocations, and long-term climate forecasts inform infrastructure planning and policymaking

**MORE INFO** [www.nrel.gov](http://www.nrel.gov)

## INNOVATION

### GRTC proves concept of spiral turbine

Fort Myers, Florida-based Golden Ratio Turbine Concepts, LLC (GRTC), a Golden Ratio wind and hydro rotary apparatus developer, has successfully wind tested its newest Golden Spiral vertical axis wind turbine (VAWT) prototype.

GRTC stated the new Golden Spiral VAWT design conforms to its patented extended spiral leverage arm technology that increases torque. The design is based on Golden Ratio geometry and elements that create a wind turbine of superb balance in motion.

“The new VAWT is graceful, quiet,



The new hybrid Chartwell 24 design has a unique hybrid propulsion system that incorporates an electric motor alongside a diesel engine, which drive a high-performance changeable pitch propeller (CPP) system. (Courtesy: Chartwell Marine)

and begins spinning in only a breath of air flow,” said inventor and GRTC founder James Walker. “The new Golden Spiral VAWT prototype has repeatedly proven the design concept.”

The new rotor configuration differs in its elements and appearance from previous GRTC models, but it is deeply rooted in the inventor’s patented concept, which creates more torque than a traditional radial rotor due to its Golden Ratio Spiral.

“Popular small wind horizontal axis wind turbine (HAWT) devices are often rated at 12.5 m/s or 28 mph, but average wind speeds are only 10-12 mph (or less) and their rated power outputs are rare,” Walker said.

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

## MAINTENANCE

### Chartwell, Diverse to build hybrid CTV for High Speed Transfers

Chartwell Marine, a pioneer in next-generation vessel design, has signed a contract to design and de-

liver a new hybrid Chartwell 24 crew transfer vessel (CTV) for High Speed Transfers (HST), an innovative CTV operator that supports the offshore wind energy and oil and gas industries worldwide. The vessel, which will provide dedicated support for the offshore wind sector, is set to be built locally in the U.K. by Isle of Wight yard Diverse Marine, which was awarded the build contract following a competitive global tender process.

HST’s order marks a milestone in the collaboration between these three British firms, which has seen a number of adaptations made to the proven Chartwell 24 design to meet the demands of hybrid operation.

The international expansion of the offshore wind sector is creating significant opportunities for the maritime supply chain and simultaneously driving substantial innovation in vessel design as operators respond to new and emerging legislative requirements. Reducing vessel emissions and fuel consumption is a key target for the industry to ensure compliance with air quality legislation and reduce the overall carbon footprint of building and operating offshore wind farms.

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

## MAINTENANCE

### New leadership takes the helm at GWO North America

Global Wind Organisation (GWO), the industry group responsible for safety training standards for more than 90,000 of the world's wind-energy workers, recently announced its leaders for its North America committee.

Wesley Witt, Head of Quality Management and Health, Safety and Environment for the Americas region of Siemens Gamesa Renewable Energy (SGRE) has been elected chairman of the GWO North America committee, and Simon Hayes, Head of Health, Safety and Environment for Ørsted and the offshore business in North America, has been elected vice chairman.

The GWO North America Committee is establishing standards for safety and technical training across the continent, and is encouraging training centers, community colleges, trade union, and others to deliver GWO standards for the wind-energy workforce.

Seventeen GWO training sites have now opened across North America, and the committee will focus its efforts on supporting the standards' adoption to help create a safer and more productive workforce.

**MORE INFO** [www.globalwindsafety.org](http://www.globalwindsafety.org)

## MANUFACTURING

### Siemens Gamesa launches next-gen turbine in India

Siemens Gamesa Renewable Energy continues to lead the way in India, one of the largest onshore markets in the world, with the introduction of its next generation wind turbine, the SG 3.4-145. The new wind turbine is specifically designed and optimized for



The SG 3.4-145 is 127.5 meters tall with a blade-tip height of 200 meters, which helps it to maximize wind potential at every site. (Courtesy: Siemens Gamesa)

wind conditions in the country and has a clear objective to deliver the lowest possible levelized cost of energy (LCOE) with high reliability. The turbine is strongly positioned to cater to the needs of the auction market and aims to further drive the growth of wind power in India.

"The Indian market is evolving fast, and so adapting to the new market dynamics is key to our success and long-term competitiveness," said Alfonso Faubel, Siemens Gamesa Onshore CEO. "The SG 3.4-145 – an incremental innovation – is a step forward in that direction. The long-term fundamentals of the wind industry remain strong, and this new turbine means Siemens Gamesa is uniquely positioned to help our customers achieve their renewable energy goals, reinforce our leading position in the market and accelerate the cause for renewables."

The new wind turbine is an extension of the Siemens Gamesa 3.X platform, of which the company has installed more than 3 GW globally and will be manufactured in its facilities in India starting in early 2021.

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

## MANUFACTURING

### TÜV NORD to certify largest offshore wind turbine

TÜV NORD recently certified the world's largest offshore wind turbine. With a capacity of up to 15 MW and a rotor diameter of 222 meters, the newest turbine from Siemens Gamesa will raise the bar and be a milestone in the generation of clean energy. Following TÜV NORD's assignment with various predecessor models, the wind-energy experts will support the SG 14-222 DD on its way to market maturity. The order covers prototype and type certification.

"We are very proud that Siemens Gamesa is relying on our expertise for this extraordinary project," said Silvio Konrad, TÜV NORD managing director.

The TÜV NORD wind experts are commissioned to certify the turbine in accordance with the internationally recognized IECRE scheme OD 501. ✈

**MORE INFO** [www.tuv-nord-group.com](http://www.tuv-nord-group.com)