

WINDESCO UNVEILS MARKET-FIRST SWARM™ TECH TO TRANSFORM WIND FARM PROFITABILITY

Cooperative turbine control system unlocks fleet optimization, providing 3-5% AEP improvement and a 3-4x return on investment over two years

Boston, MA, USA – 26th October 2021 - WindESCo, a pioneer in accelerating annual energy production (AEP) for wind turbine stakeholders, has launched WindESCo Swarm™ - the world's first commercially available, patented, solution for autonomous, cooperative control of wind assets.

Taking cues from nature, and the intuitive decision-making of birds in flight, WindESCo Swarm™ is set to unlock millions of dollars for wind asset owners by enabling turbines to cooperatively adjust positioning to boost production for the entire farm - not just single machines - by 3-5% annually. For a typical 1GW wind plant, this would translate to in excess of \$20 million (€17 million) over a five year period.

Accelerating annual energy production (AEP) is a key issue for wind industry stakeholders. Until now, available solutions sought to optimize wind assets on a turbine-by-turbine basis. This approach can deliver incremental improvements for asset owners but does not reflect the complex reality of wind farm operations and is insufficient to address the fleet-wide losses of between 5 to 20% of potential power production which are common to the industry.

WindESCo Swarm is the first off-the-shelf solution that connects and creates a shared understanding between turbines. It allows turbines to know what is happening at neighboring assets, along with the direction, strength and any shifts in wind resource, to change their operational profiles and optimize the swarm instead of individual machines. By understanding how their operation is impacting the performance of the site at large, WindESCo Swarm enables wind assets to take predictive, protective and proactive turbine control measures for maximized fleet-wide production.

Blair Heavey, CEO, WindESCo, said: "In a competitive market, our customers are telling us they're looking to springboard from defensive or risk based solutions to offensive, revenue producing solutions to tackle the widespread challenge of LCOE.

Wind projects often see low profit margins, especially when plants fail to meet performance projections, but current solutions do not provide actionable insights and a measurable ROI in terms of tangible site-wide production boosts.

“The difference between a growth-oriented mindset versus simple risk aversion is building a proactive strategy to improve performance. WindESCo Swarm is set to become the go-to solution for wind operators looking to supercharge their assets and deliver consistent, year-on-year revenue increases without compromising useful asset life - in short, squeezing out every megawatt available from their investments”, concluded Heavey.

WindESCo Swarm combines hardware and software as an integrated system to help owners unlock value by allowing turbines to communicate with and learn from each other. To develop the system WindESCo used a multidisciplinary approach combining the fields of turbine loads, controls, meteorology, sensing and machine learning. The system has been developed with three years of concentrated investment. The first commercial implementation on 3 wind plants with over 300 MW of capacity is underway in North America. It is currently being offered as a repowering solution that is compatible with most turbine OEMs and models.

The Swarm system provisional patent application is 63/215, "Systems and Methods for Improving Wind Farm Energy Extraction through Enhanced Wind Direction Measurement and Nacelle Position Control". The WeAdapt (Swarm Edge implementation) is US patent application number 17/361,365 "Methods and Systems of Advanced Yaw Control of Wind Turbine" The international application number is PCT/US 21/39475.

For More Information:

For a whitepaper describing WindESCo Swarm, data from the test and commercial sites, and an interactive simulator, contact Lauren Howard, Director of Marketing at lhoward@windesco.com.

About WindESCo:

WindESCo drives annual energy production (AEP) gains for wind turbine owners, operators and investors by monitoring and analyzing high-resolution wind turbine data through patented algorithms. WindESCo Software-as-a-Service (SaaS) solutions find and fix anomalies in Yaw alignment, Pitch Optimization and Wake Steering through hardware and controller modifications, measuring AEP improvements to deliver revenue gains.

WindESCo's independent outlook improves the revenue position of customers, paying for itself within 12 months, and returning up to seven times customer investment.

WindESCo's software service is built on wind turbine expertise and first-hand understanding of complex wind dynamics, turbine controls and wind loads, bridging the gap between the AEP improvements wind operators expect, and the service agreements signed with their OEMs.