

Wind Farm Optimization



Integrated Technology from Emerson and Vayu Increases Megawatt Output & Revenue

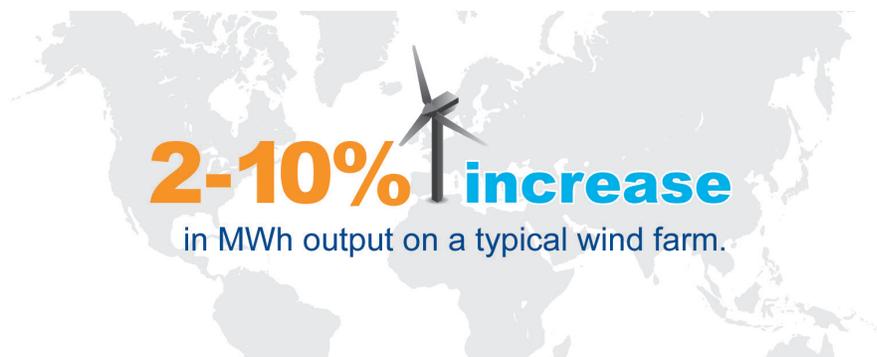
Emerson and Vayu have formed an alliance to provide a solution that minimizes energy losses due to wind wake, resulting in increased clean energy output and higher revenue for wind farm operators in the Americas, Caribbean and Europe. The collaboration combines the advanced power applications and networking capabilities of Emerson's Ovation™ automation platform with Vayu's cloud-computing wind energy optimization technology. The alliance combines the respective strengths of Emerson and Vayu to create a first-of-its-kind, intelligent solution for wind farm optimization, helping wind energy producers maximize aggregate power output, achieve financial objectives and deliver more clean power to their communities.



Vayu's cloud-computing optimization service significantly increases wind farm energy production using complex modeling and machine-learning principles. Vayu applies proprietary, physics-based algorithms to transform massive amounts wind stream data into useful information — identifying cooperative action among multiple wind turbines to diminish the impact of turbulence and increase power production, all without adding mechanical strain to the turbine components.

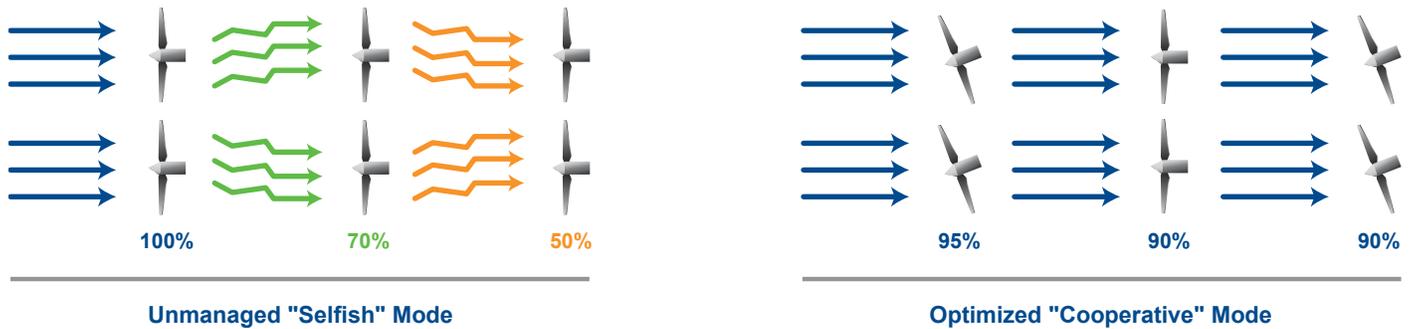


Emerson's Ovation technology, designed specifically to accommodate the flexibility demanded by renewables and other highly distributed energy resource (DER) applications, uses a fault-tolerant network to provide near-real-time communication of optimal settings for each turbine within a wind farm. The capability of Ovation to interface to any turbine controller — regardless of manufacturer — provides a utility-proven, cost-effective alternative to full-scale repowering.



Minimal Investment for Maximum Return

Wakes from upwind turbines operating in a traditional "selfish" mode prevent downwind turbines from receiving full energy from the wind stream, significantly reducing overall production. The Emerson and Vayu solution enables turbines to work "cooperatively," adjusting the yaw of each turbine so they work together to extract optimum energy from the wind stream.



Emerson's Ovation compact control technology easily interfaces with any turbine controller without logic or configuration changes – regardless of manufacturer – eliminating the significant time and expense associated with removing and replacing existing turbine controls. The Ovation controller communicates data from each turbine's wind sensor to the Vayu system every 1-2 seconds – much faster than the 10 minutes typically required to perform this function using traditional equipment. This near-real-time data enables Vayu's models to accurately calculate the optimum yaw setting for each turbine while advanced machine learning and analytics improve the model's predictive capability over time.

