Improving your wind farms performance

Improving the performance of wind farms is an important challenge facing every electricity producer and operator. That’s why Senvion has developed a series of performance enhancing hardware and software technologies to help producers achieve even greater gains. Depending on site specific conditions, Senvion offers a series of innovative solutions that significantly boost the output of your wind farms.

Among the various solutions proposed, the Senvion Turbine Control Upgrade optimizes the Annual Energy Production (AEP) of the wind turbines thanks to innovative software improvements, including the ability to optimize the turbine through self-learning algorithms.

The Turbine Control Upgrade is a bundle of performance-enhancing software products, derived from our data analysis activities and comprises the following features:

- Dynamic Yaw
- Smart Turbine Start

The combination of these two features can increase the Annual Energy Production of your wind farm by over 0.5%*.
Two high-performance features: angles of deviation and cut-in wind speed

Senvion Turbine Control Upgrade is based on two features called ‘Dynamic Yaw’ and ‘Smart Turbine Start’.

Ideally, the rotor of a wind turbine should point directly towards the wind at all times to produce maximum output. However, this would require constant adjustment leading to increased energy consumption of the turbine, thus reducing the gain in output. All Senvion turbines have predefined yaw angles of acceptable deviation and delays before correction of alignment, calculated for a range of different turbines and reflect an average of wind conditions at various sites. However, with specific analysis, these parameters have been optimized to generate higher output. This is the basis of Senvion ‘Dynamic Yaw’ technology.

The second feature, ‘Smart Turbine Start,’ optimizes the standard cut-in wind speed of Senvion turbines. Senvion R&D engineers have improved the setting for individual sites by programming an algorithm which is fed with SCADA data and optimizes the start-up behavior to individual site conditions. This enables harvesting of wind energy at wind speeds below the standard cut-in speed and reduces idle time, both of which result in an increase of AEP.

Should you need further information about the Senvion Turbine Control Upgrade solution, please contact us. We will be happy to support and provide you with a customised offer.

Benefits of Senvion Turbine Control Upgrade:

> Optimized yaw angle increases Annual Energy Production (AEP)
> Increased power output despite increased yawing
> Reduction of loads due to improved rotor alignment
> Particularly effective for turbines located on easy and medium-complex terrain
> Reduced idle time increases output at low wind speeds
> Site-specific adjustment of start-up speed based on smart algorithms

*depending on the sites.