

Vestas **Shadow Flicker Control System**

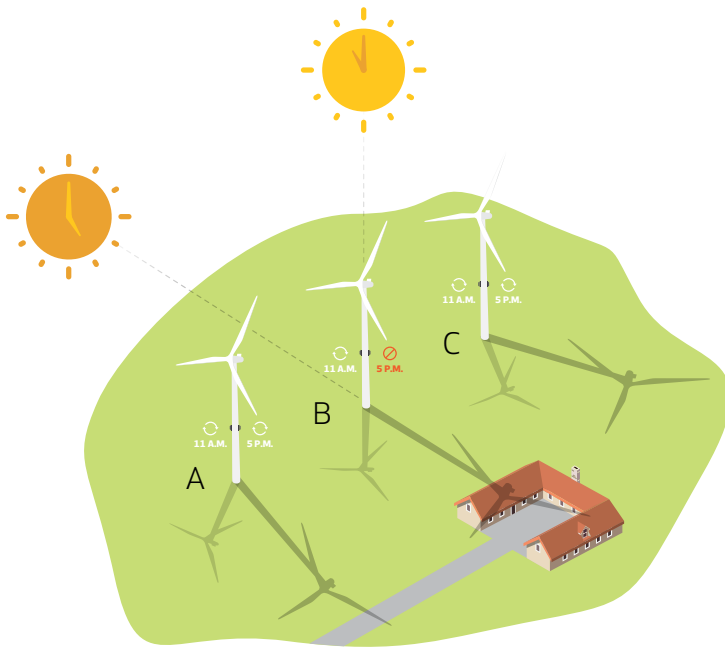
Benefits of Vestas Shadow Flicker Control System:

- Maximise energy production while avoiding shadow flicker
 - Integrated into the Vestas SCADA system
 - Reliable and proven technology
 - Reporting to document compliance towards authorities
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Maximising wind turbine energy production while avoiding shadow flicker on surrounding inhabited areas

Minimising negative impact on surroundings

The Vestas Shadow Flicker Control System is a solution designed to tailor turbine operation to minimise the negative impact of shadow flicker on surroundings. Shadow flicker occurs when sunlight on a certain spot is continuously broken by the rotating turbine blades. The system ensures maximum turbine energy production, while adhering to local requirements and avoiding shadow flicker on surrounding inhabited areas.



Example of Shadow Flicker Control System Operation:

At 5:00 P.M. the shadow casted by wind turbine B reaches the nearby building. With light intensity measured to be above the established threshold, turbine B is temporarily paused to avoid the negative impact of shadow flicker. The remaining turbines in the wind farm continue to operate.

Availability of Vestas' Shadow Flicker Control System:

V90-2.0 MW™
 V100-2.0 MW®
 V110-2.0 MW®
 V120-2.2 MW™

V105-3.45 MW™
 V112-3.45 MW®
 V117-3.45 MW®
 V117-4.2 MW™
 V126-3.45 MW®
 V136-3.45 MW®
 V136-4.2 MW™
 V136-4.5 MW™
 V150-4.2 MW™
 V150-4.5 MW™
 V155-3.6 MW™

V150-6.0 MW™
 V162-6.2 MW™
 V162-7.2 MW™
 V172-7.2 MW™

Vestas Shadow Flicker Control System is available for new turbine sales and retrofitting to the existing installed base. For retrofitting, scope of deliverables may differ depending on turbine variants and the Vestas Power Plant Controller generation.

Determining shadow flicker

The Vestas Shadow Flicker Control System consists of a controller and a pair of light intensity sensors. A light intensity sensor is installed on either side of the turbine tower facing directly east and west. By measuring and comparing the light intensity of the two sensors, the system can determine if direct sunlight is present. Based on information about the location of the sun, the turbines, and the surroundings, the controller can determine if any turbines are causing shadow flicker onto inhabited areas. Wind Pro configuration files are used for the configuration of the system.

Shadow flicker management

To limit shadow flicker impact on the surroundings, the Vestas Shadow Flicker Control System will pause a turbine if it determines that the turbine is causing shadow flicker over an inhabited area. As soon as the period of shadow flicker ends, operation is resumed to continue production. To further maximise energy production where permitted in applicable regulations, the system can be configured to allow for a certain amount of accumulated shadow flicker per day or per year before pausing the turbines.

The system will log whenever a turbine is temporarily stopped due to shadow flicker. Based on the log, reports can be generated, for example, to document lost energy production or as evidence of correct operations for compliance auditing purposes.

Contact us

Please contact your local Vestas service team for your specific requirements or market-specific availability.

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