

# Vestas

## Bat Protection System

Maximising turbine performance while minimising the environmental impact

### Benefits of Vestas Bat Protection System

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- Maximise energy production while adhering to local requirements
  - Reliable and proven technology
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### Safeguard bat species

Vestas Bat Protection System is a software solution that responds to certain environmental factors related to the likelihood of bat presence. The highly predictive behavior of bats allows the turbine to respond to relevant environmental factors which impact the behavior of bats. By smartly pausing the turbine, performance can be maximised while minimising the environmental impact. Operational mitigation can reduce bat mortality by up to 78%\*.

\* Martin, C., Arnett, E. B., Stevens, R. D., & Wallace, M. C. (2017). Reducing bat fatalities at wind facilities while improving the economic efficiency of operational mitigation. *Journal of Mammalogy*, 98(2), 387-385.



## Availability of Vestas Bat Protection 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 Bat Protection System is available as retrofit option on all Vestas turbines running on VMP Global™ while the Bat Deterrent System is available as an after-sales solution on selected turbine types.

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## Individual turbine evaluation of environmental conditions

The Bat Protection system evaluates the environmental conditions for each turbine and pauses them individually when needed. Bats are generally most active within two hours of sunset. Low wind speeds further increase the likelihood of bat activity, which also varies according to season.

## Optional precipitation sensor for optimised energy production

Rain considerably diminishes bats activity. Vestas Bat Protection System offers an optional rain sensor which allows the system to adapt to precipitation factors, further increasing accuracy of turbine pausing.

## Bat Deterrent System

Depending on site conditions, Vestas offers an additional after-sales solution to customers in U.S. and Canada to safeguard bat populations. The Bat Deterrent System features five acoustic panels and uses ultrasonic sound waves to dissuade bats from entering the rotor-swept area of a turbine. The solution protects bats while reducing Annual Energy Production lossess associated with bat activity and is seamlessly integrated with Vestas SCADA System.

## For more information

Please contact the local Vestas office for market specific availability and further information.

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