

## CASE STUDY: CARSTEN & ANNI SCHACHT (RURAL HOUSE AND BUSINESS)

PRIMARY OBJECTIVE: REDUCE ENERGY BILLS

*“ Our expectations have been wholly and fully met. We do not hear it, it just spins ”*

*Carsten Schacht,  
Gaia-Wind Turbine Owner, Knebel*



## BACKGROUND

On the 20th June 2008 Carsten and Anni Schacht in Knebel, Denmark installed a Gaia-Wind turbine on their property that had recently undergone a big extension, which also included installing an air to water heat pump. Carsten and Anni's house has a floor space of 435 m<sup>2</sup> and includes Anni's heated studio and gallery which a big part in the heating bills ([www.modern-art.dk](http://www.modern-art.dk) & [www.malerejser.com](http://www.malerejser.com)). Their annual electricity consumption is 24 000 kWh per year.

The primary motive for Carsten and Anni Schacht's wind turbine was to reduce their current electricity bill to a minimum, as well as reducing their CO<sub>2</sub> footprint of 17 tons per year.

The Gaia-Wind 133-11kW turbine was chosen because Carsten and Anni Schacht had analysed all the information beforehand and could see that it would successfully pay itself off.

## SITE CONDITIONS

The Schacht's house is 2 km from the Århus Bugten coast and approximately 20 m above sea level. Wind conditions are optimal with absolutely nothing to obstruct the wind from any direction. The predominant wind comes from the west and has an average speed of 6 metres per second.

## TURBINE PERFORMANCE

By April 2009 Carsten & Anni Schacht's wind turbine had been spinning for 10 months. For Carsten, who is a school headmaster, and Anni, who is an artist and teaches artistic studies, the expense has been more than justified. The wind turbine's performance has exceeded all their expectations. Both constantly keep an eye on the wind turbine, using its data for calculations and analysis. So far the wind turbine has produced 28 822 kWh during the last 10 months, which projects to a yearly output of approximately 34 000 kWh. "Our expectations are therefore wholly and fully met. We do not hear it, it just spins" says Anni & Carsten Schacht.



## ABOUT GAIA-WIND

Gaia-Wind manufactures wind turbines for light industrial, agricultural, commercial, municipal and residential use. Our clients include working farms, educational institutions, large home owners, offices and other commercial premises. To date, there are over 200 worldwide Gaia-Wind installations, representing over 1000 years of combined operational history.

Our wind turbines incorporate over 20 years of Danish wind industry design experience and offer the performance and safety features that are usually only found in larger, utility scale turbines. Our oversized rotor design allows the turbine to deliver up to 80% more energy than other similarly rated equipment, enhancing project economics and maximizing the return on your investment, whilst ensuring optimum performance in low to moderate wind speed regimes (10-12mph).

A Gaia-Wind turbine generating around 30,000 kWh of green electricity per year, will offset around 17 tonnes of CO<sub>2</sub> emissions from existing energy generation. This is sufficient to bring the carbon footprint of the average four person household back to zero (household energy use + car + air travel).