

Silent and efficient wind turbine

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In general my feeling on wind power has been “go big or go home.” While I think utility-scale wind farms are a significant player in renewable energy, most small wind (i.e. residential) options are very expensive and require high wind speeds in order to produce a substantial amount of energy. And yes, small turbines tend to be noisy. The Eco Whisper might be an innovation that silences my skepticism about small wind.

Renewable Energy Solutions Australia (RESA) is the owner of what it calls the world’s most advanced silent wind turbine for mid-sized applications, about 20kW. The turbine features a 30-blade design that is almost silent and up to 30% more efficient than traditional 3-bladed designs. The Eco Whisper Turbine stands 21.1-m high and can produce high energy in low or high winds with a footprint of only 21 m². In comparison, the same output from solar panels would require 250 m².

Following two years of development and testing in Australia, the turbine is ready. It’s first commercial installation is in Tullamarine. The turbine was a finalist in the 2011 Australian Cleantech Awards and was recently awarded a \$250,000 commercialisation grant from the Australian government.

The Eco Whisper Turbine can offset medium to large energy requirements. It is suited to commercial, manufacturing, and industrial sites and other applications. It also works on and off grid application with a particular focus on remote communities and diesel replacement.

Other plusses are that it collects wind more efficiently and there are no turn away losses, it delivers more energy from more common wind speeds than three bladed designs, and it performs well in all wind conditions (lower start up speed compared to competitors)

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Houston-based Aeromine Technologies has fitted a bunch of silent and motionless wind energy harnessing airfoils on the roof of BMW’s MINI manufacturing plant in Oxford, UK. They’re meant to complement the factory’s solar panels to produce clean energy, while taking up a lot less space.

How much less? Aeromine says that each of its turbines - which contain no visible moving parts - require just 10% of rooftop area as a solar panel to produce the same amount of energy. The company also claimed they deliver 50% more energy than solar installations at the same cost.

Aeromine noted back in 2022 that it had been testing its contraptions at chemical manufacturer BASF Corporation’s facility in Michigan. The recently installed motionless wind energy system at the MINI plant is



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the first of its kind in the UK.

Beyond their small footprint, these turbines are also inexpensive to build and maintain. The company says they're made from easily recyclable materials, utilize a sealed generator that doesn't require periodic lubrication, and should last 20 years.

These turbines are placed on the edges of building roofs, facing the predominant wind direction. As wind accelerates when it goes over the edge of a building, it flows over vertical airfoils positioned on either side of a tall central column. This creates a low-pressure zone behind the column, which causes air to be sucked through the bottom of the device, turning an internal propeller to generate power.

The big idea with Aeromine's wind harvesters is to complement rooftop solar - which can only generate energy when it's sunny out - so you have a more robust system overall. Since they have a small footprint, you've got lots of space to fit solar panels between turbines.

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