



Innovative wind turbine design triples output

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From the first flight at Kitty Hawk, it took about 50 years to engineer the switch from spinning propellers to more efficient jet engines. Now wind technology could be about to make a similar design leap, barely a decade after the commercial industry's birth in the U.S.

Using features drawn from jet engine design, FloDesign Wind Turbine (shown above in an artist's rendering) has developed a prototype that is three times more efficient at turning the wind into electricity than today's towering, three-bladed models, according to CEO Stanley Kowalski III. Carefully shaped cowlings channel air into patterns that create spinning vortices – like miniature tornadoes – as the currents exit the device. This trick accelerates the air as it pass through.

The technology could transform the commercial wind business with units that are easier to install, longer lasting, and more adaptable to a variety of environments. Today's wind turbines can top out at 300 feet or taller, requiring a train of tractor trailers to haul tower sections and blades that are as long as a football field. FloDesign's new approach fits on a single rig.

Because its blades are lighter and smaller, the design starts spinning and making energy at lower wind speeds and is more tolerant of volatile wind patterns, making it a natural for windy niches where big turbines can't fit, such as in cities, on ridgelines and beaches.

Scaled down blades also spin faster, reducing the need for the costly gear boxes that today's windmills must use to connect slow-moving rotors to a high-speed generator kits. With fewer gears and other moving parts, the company claims it can reduce the parts count in a turbine by up to 75%, thereby boosting reliability, too.

The Wilbraham (Mass.)-based company, which has also received funding from the Energy Dept., is hunting for another \$25 million to deploy full scale test rigs. Last year, it landed two start-up awards from the Massachusetts Institute of Technology, including cash grants of \$300,000. Kleiner, Perkins, Caufield & Byers committed \$6 million in venture capital in an initial funding round in 2008.