

New Japanese Wind Turbine Triples Power Output Without Increasing Size

 By [RP Siegel](#) | September 9th, 2011



Necessity, as we've all been told can sometimes be the mother of invention. In Japan, there is a necessity for a power source that does not require [fossil fuels](#), since they don't have any. So the Japanese invested heavily in nuclear power, which, at the moment, is looking like a tenuous investment given the recent Fukushima meltdown. Fortunately, they did not put all their eggs in one basket, either.

In fact, researchers at [Kyushu University](#), which houses the International Institute for Carbon-Neutral Energy Research, had a hunch that the answer just might be blowin' in the wind, if only they could squeeze a little more out of it than what conventional technology would allow.

That's when they came up with the [wind lens](#). What is a wind lens, you ask, and what does it do? What does any lens do? It focuses. Except instead of focusing light, a wind lens, which is an inward curving ring around the perimeter of the circle inscribed by the turbine's blades as they rotate, focuses airflow, directing and accelerating the air as it enters the blade zone. See the video below:

According to team leader Professor Prof. Yuji Ohya, it consists of an [inlet shroud, a diffuser and a brim](#). This results in a low pressure area behind the turbine which draws in more air creating even more power. Researchers claim that this approach can triple the turbine's output while reducing noise at the same time.

Last year in the US, wind turbines provided 40,180 MW of power, or 3.2% of total demand. Tripling that would bring it quickly up to 10%.

Extrapolating that out a bit: at this rate, the entire US energy demand could be met with about 20% of its wind energy potential. This would require an area of 170,000 square miles, about the size of California. Now, that's still a pretty big area, but it's getting smaller all the time. (Not that we ever wanted to meet all of our demand with wind, anyway.)

What is also getting smaller is the cost. This technology puts wind cost below coal and nuclear without subsidies. Growth in wind power will go hand in hand with growth in [electric vehicles](#), which will be charging up overnight, which is when the winds are typically strongest.

Given the fact that Japan is an island nation, it has the advantage of being surrounded by water. The Kyushu researchers anticipate that the best use of these turbines will be offshore. They have designed hexagonal-shaped floating platforms to support them. The platform can be combined into a beehive-like formation. (See video)