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## : NEXTFEST: RENEWABLE ENERGY AND MOVING ATOMS

by [Cecilia](#) on 2006/10/17 18:35:50

As I mention before there was an amazing amount of renewable energy technology shown at NextFEST. Which is a good thing since we desperately need it. I think we are all familiar with the way a typical wind turbine looks. Those ubiquitous three propeller blades that make it look like the turf it's on is about to take off. It's called **HAWT** - Horizontal Axis Wind Turbine and they work fine out on flat land that's facing a good strong wind. I've seen a "farm" or them out in California deserts placed near mountains because the wind gets caught in those areas. But they don't work too well in urban areas where wind is buffeted by large building suddenly rising up here and there.



An engineering and design studio in London, **XCO2** has been working on a wind turbine custom made just for the city.

**quietrevolution** is the resulting Vertical Axis Wind Turbine - VAWT. And it's quite attractive! Click on the thumbnail to the right. I took that picture at the show while the blades were turning. You can't really tell from a still that it was moving (the **quietrevolution** link takes you to a mov file). It wasn't loud or annoying. And that's an advantage when placing a group of these on top of highrises and tall buildings. Unlike the **HAWT** design, the **VAWT** doesn't stop moving when the wind isn't directly facing the blades. Because the **VAWT** blades are cleverly curved, they are always "facing" any wind available. They may slow down and speed up as wind rises and falls, but there's no sudden stopping and starting.

The other good news is how effective these turbines are at generating energy. The basic medium sized model (QR5) will generate about 10,000 kWh per year with a wind site of 5.8m/s average. That means powering several low-energy homes or a twenty personal office. Let's not waste any time - or energy - start putting these things on your highrise!

Solar panels tend to be, well, unattractive. The Idea is great, but if you want to install some panels on the roof of your home I hope you live in a neighborhood which won't whine about the LOOK. And then there's the cost. The initial investment is not cheap. My mother has been interested in this for years but just has never been able to afford it.

So when I saw what **ClearPower Technology** had to offer my interest was peaked! They have created a new solar panel design. So new it's invisible! By that I mean you don't see those flat blue sheets that scream "**SOLAR PANEL**"! Instead what you see is a sort of window or clear material with tiny nonmoving "louvers". It simply appears to be an interesting architectural design - Not a device. But looks can be deceiving! Like other solar panels this new design also uses silicon and thin films. However, the design requires much less of this expensive material - one way to reduce the cost. This is accomplished by directing the sunlight into and through the "non-imaging optics" parts of the panel. At the bottom of this is the photovoltaic material which suck up the Sun's light. Because the angle available to grab the Sun's power is large there's no need to track the movement of the Sun. No extra mechanics, just "passive" concentration of energy storage. The advantage of non-imaging optics is that direct sunlight is not required and the panels work well on cloudy days. Now THAT is clever.

**Farm-Way** of Bradford, Vermont have decided they need this cleverness and have ordered \$200k Stellaris module system to be installed next year. This system will be supplying about 20% of Farm-Way's electrical requirements although they expect to increase that to about 50% in the coming years. This will include electricity-generating skylights, curtain walls and the entrance sign to the building. This will display the Farm-Way name on backing plates of the transparent modules. Wow! I can't wait to see that. I'll be following this up so expect to see more stories about Stellaris in the future!

## : Space Exploration:



To those of us who grew up with Astronauts bouncing around on the moon, while they tried to pick up those special rocks, playing golf,



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