

Could solar wind power Earth?

October 4 2010, by Miranda Marquit



Image source: plus.maths.org

(PhysOrg.com) -- As we strive to find sources of alternative energy, a number of researchers continue to look to what we consider the ultimate in renewable energy -- the sun. However, on earth creating efficient solar panels remains a challenge. While solar cells have been increasing in efficiency, and while new advances are made in solar technology on earth, there are some looking to harvest solar energy a little bit closer to the source by harvesting energy from the solar wind.

The [solar wind](#) is a stream of charged particles that heads outward from the sun's [upper atmosphere](#). They move outward toward Earth and the rest of the planets, and provide the potential to power to the entire Earth, according to some researchers. And, even though we refer to the solar wind as "wind", it wouldn't provide energy in the way we see [wind turbines](#) act here on earth. Instead, energy from the solar wind would be

collected by a gigantic sail deployed in space, between the sun and Earth.

One proposal has been offered by scientists at Washington State University. [Discovery News](#) reports on the specs of a massive solar sail -- and its potential:

According to the team's calculations, 300 meters (984 feet) of copper wire, attached to a two-meter-wide (6.6-foot-wide) receiver and a 10-meter (32.8-foot) sail, would generate enough power for 1,000 homes.

A satellite with a 1,000-meter (3,280-foot) cable and a sail 8,400 kilometers (5,220 miles) across, placed at roughly the same orbit, would generate one billion billion gigawatts of power.

The real challenge is how to get all that energy back to Earth in order to power the planet. One idea is to use a concentrated [laser beam](#) to send the energy back to Earth. Unfortunately, there would be millions of miles between satellite and its earthly target, making it difficult for the laser beam to reach the planet without widening and losing energy.

While it is likely that the solar sail could be built and deployed with current technology, beaming the energy it harvests from the solar wind will take a little more time to figure out. Until then, we will have to be content with [solar cells](#) on Earth.

More information: -- Eric Bland, "Solar Or Wind Power? Why Not Both?" *Discovery News* (September 29, 2010). Available online:

news.discovery.com/tech/solar-...nd-energy-power.html

-- Brooks L. Harrop and Dirk Schulze-Makuch, "The Solar Wind Power Satellite as an alternative to a traditional Dyson Sphere and its implications for remote detection," *International Journal of Astrobiology* (2010). Available online: journals.cambridge.org/action/...

[Id=S1473550410000066](http://journals.cambridge.org/action/...Id=S1473550410000066)

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