

# First space-to-earth solar power station targeted for Oct. 2010

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***Sir Charles Shults of Xenotech Research describes their current projects, including assisting deployment of an orbital solar power station; ramping up for manufacturing of an affordable, modular 500W Solar Pod for purchase within six months; and designing a residential wind turbine expected to be 1/3 the cost of others.***

Last Monday, I [interviewed](#) Sir Charles Shults III of Xenotech Research which has several projects under way: 1) moving near the New Mexico space port to expedite development of an orbital solar power project for deployment in Oct. 2010; 2) ramping up for manufacturing of an affordable, modular 500W Solar Pod for purchase within six months; 3) designing a residential wind turbine expected to be 1/3 the cost of others.



[Stream](#) | [Download Interview Audio File](#) (12 Mb; mp3; 50 min)

On June 29, 2009, Sir Charles Shults joined me on the [Free Energy Now](#) radio show.

## Space-Based Solar

Because of his work with what apparently will be the first functioning space-based solar array for transmitting power to earth, Sir Charles was invited to be part of the recent groundbreaking for [Spaceport America](#) on June 19 in New Mexico, near Truth or Consequences -- yes, that's the name of a town. Shults is relocating Xenotech Research there so they'll be conveniently located for their work in conjunction with the deployment of what apparently will be the world's first space-based solar collector and transmission project, to be carried out by the [Space Island Group](#). Space Island Group (SIG) is the leader in the commercialization of space and plans to design, build and operate commercial space transportation systems and destinations that are dedicated to commerce, research, space solar power, satellite repair, manufacturing and tourism. ([Ref.](#))

The solar collector components will be piggy-backed to space along with the space tourism that will be carried out. Sir Charles told me he has recently been negotiating with Gene Meyers and Terry Martin of SIG. They are looking to him to supply some technologies for their orbital solar power project, having received permission to orbit a solar power satellite demonstrator and will soon be building receiving stations on the ground for the proof of principle. Sir Charles' involvement includes advising on methods for moving craft from lower to higher orbits using less rocket fuel; energy generation technology; and technology for power-receiving antennas on the ground.

They plan for the first proof of concept solar station to be deployed in a low earth orbit of 300 miles in October of 2010, generating around 12-13 kilowatts. The power will be transmitted via precisely-tuned microwave frequencies, and will require "no fly zones" above the receiver area on earth.



Terminal Hanger Concept, Spaceport America, in New Mexico. Sir Shults attended the groundbreaking ceremony on June 19, 2009.

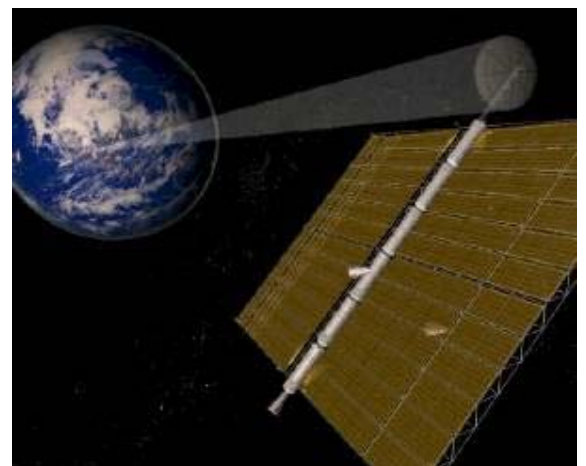


Image of an orbiting solar power station - the array will collect sunlight, convert it to electrical power,

By 2012, they intend to deploy a 1 gigawatt (akin to a nuclear power plant output) geosynchronous space solar station up around 22,300 miles, which will be constantly available on earth except during lunar eclipses of the solar station. The intensity of solar energy in space above the Earth's atmosphere is 1360 watts per square meter, compared to a maximum of 960 Watts/m<sup>2</sup>, depending on angle through the earth's atmosphere. (Ref.) Taking into consideration the day-night cycles and cloud cover, an earth-based solar system, even in an ideal location, will only generate about 20% as much power as what the same sized space-based array could generate.

At first, the receiving stations will be fixed-location utilities, but Sir Charles said that in the future, it's conceivable that one could have a mobile device with a subscription to receive power, very similar to a cell phone account. For this reason, the military has been especially interested in the technology, as it would resolve fuel supply-line issues.

The transmission of power apparently can be done very efficiently as well. Sir Charles said that according to new work being done by Mitsubishi in Japan for cell phone power, wireless point-to-point transmission on earth presently exceeds the efficiency of copper wire-based transmission.

The space solar initiative has been in development since 1970, when the original proposal was made.

The space tourism initiative has been given momentum recently by Burt Rutan who made the first successful non-government-sponsored space flight (actually three). His technology was purchased by Sir Richard Branson's [Virgin Galactic](#), who then hired Burt to design a larger transport system which will be the basis of the first commercial space flights. (Ref.)

## Solar Pod

Another project Xenotech is working on is to build a manufacturing plant for their 500-Watt solar pod system, which they hope to have available within six months. The modular pod system involves a sun-tracking Fresnel lens focusing the sun's energy on a 10-inch diameter cylindrical pod 10 inches deep that converts the solar heat into electricity using a proprietary fluid. It is a variation of a 6 KW Fresnel solar technology Sir Charles was working on last year, but different enough to not create IP problems with the others that were involved in that project.

Sir Charles expects that the installed cost will be around \$2 / Watt at first, but once they get some volume going, they hope to get it down to the coveted \$1 / Watt price range, which will mean around a 3-5 year return on investment.

## Wind Turbine

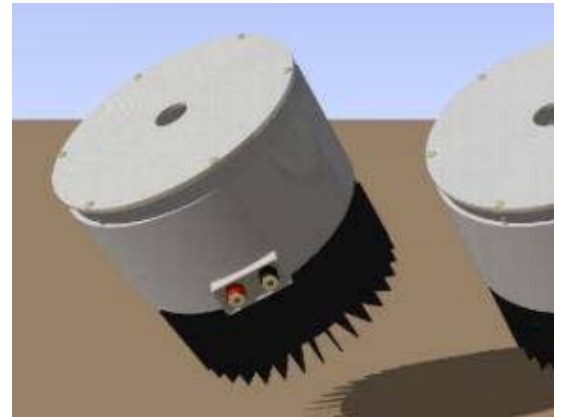
Sir Charles said he and his group have spent the past four months immersed in research on small-scale wind turbine technology for residential applications. The resulting novel design they came up with is a variation of a vertical axis turbine. They call it an "air diode", as it allows the wind to flow in only one direction. Initial reviews of their technology have been encouraging. They expect that the cost of the turbine will be one third of presently-available residential wind turbines.

## About Xenotech Research and Sir Charles Shults III

Xenotech Research was founded in around 1992, starting in robotics and AIVs (artificial intelligence vehicles). More recently

and beam the energy to receivers on the ground. Potentially, subscribers can be all over the world, and power can be sent to locations where power wires cannot easily be run for economic or environmental reasons.

Image source: © Space Island Group



Xenotech says their new modular Energy Pods will be available for home or business needs by around Dec. 2009. The small opening is for the focal point from a Fresnel lens.

they have gravitated toward focusing on sun and wind power as well as water recycling technologies.

Sir Charles Shults III worked at Martin Marietta Aerospace for 10 years on weapons systems and computer based automated test equipment. He wrote the nuclear EMP test software for the Pershing II missile system, worked on the Patriot, the Copperhead tank killer, and advanced attack helicopter systems. He has performed research under grant on nuclear fusion, was knighted and received a long term grant for his present research in robotics and artificial intelligence. He has written many technical publications and magazine articles on space, astronomy, the atmosphere, and space resource development. ([Ref.](#))

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## Links Mentioned

- <http://XenotechResearch.com> - official site
- <http://SpaceIslandGroup.com>
- <http://SpaceportAmerica.com>
- <http://VirginGalactic.com>

## Shults Interview Audio

- [Stream](#) (via Mevio.com) | [Download](#) (12 Mb; mp3; 50 min)

## See also

*PESWiki.com* pages:

- [Xenotech Research](#) - feature page
- [Directory:Charles Shults' Fresnel Solar Design](#)
- [Directory:Space Based Solar Power](#)
- [Directory:Solar](#)
- [Directory:Wind](#)
- [More Stories by Sterling D. Allan](#)
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  - [Free Energy News \(.com\)](#) - Daily cutting-edge, clean energy technology news from around the world
  - [PESWiki Latest](#) - Newest feature pages in the publicly-editable energy directory.
  - [Free Energy Now \(.net\)](#) - 1-hour, in-depth, live interview, each Monday, 9:00 - 10:00 pm Arizona time (same as Mountain from Nov. 2 - March).
  - [This Week in Free Energy™](#) - Ten-minute recap each Sunday, 7:50 - 8:00 pm Mountain.

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