Solar wind power satellite

Could a solar wind power satellite replace Dyson sphere?

Brooks L. Harrop and Dirk Schulze-Makuch of Washington State University recently proposed a solar wind power satellite to function as an alternative to the futuristic Dyson sphere.Their 8,400 km wide solar sail would theoretically generate 1 billion billion gigawatts of power,magnitudes higher than the energy needs of the Earth.

What is a solar power satellite?

The idea for a Solar Power Satellite that would help meet the growing energy needs of developed and developing nations was conceived by Dr. Peter Glaser in 1968 . Dr. Glaser's concept was orbiting satellites converting solar energy and transmitting the energy to earth via a radio frequency energy beam.

Why is NASA launching a solar wind satellite?

NASA is launching the Wind satellite to provide a much better understanding of the Sun's magnetic field and the solar wind. After its November 1,1994,launch,the satellite will take up a vantage point between the Sun and the Earth,giving scientists a unique opportunity to study the enormous flow of energy and momentum known as the solar wind.

How does solar wind affect satellites?

In times of intense solar wind,the atmosphere heats more and expands,which means satellites with orbits lower than about 1,000 kilometers (620 miles) are more likely to run into air and lose energy-- lowering satellite orbits by as much as 30 kilometers (18 miles). The particles of the solar wind are protons and electrons.

Why would a solar wind satellite need a laser beam?

An infrared beam was selected because it has the ability to penetrate the Earth's atmosphere. However,the laser beam has a stupendous distance to travel before it even comes close to Earth's atmosphere. The solar wind satellite would need to be in orbit millions of kilometers from the Earth.

How does solar wind affect spacecraft?

As the solar wind travels through the Solar System,it interacts with celestial bodies and spacecraft. These interactions range from the benign,in the case of sparking the auroras on our planet,to highly disruptive,in that solar storms can interfere with or even damage electrical systemson the ground or in spacecraft.

Figure 3: Overview of the original mission orbit (image credit: NASA) 2) WIND extended mission. In Nov. 1996, WIND was inserted into a "halo" orbit, about the sunward Sun-Earth gravitational equilibrium point (Lagrangian ...

Here we discuss the various designs of a Dyson Sphere and propose the Solar Wind Power (SWP) Satellite, a simplistic, self-sustaining system that draws power from the ...

Solar wind power satellite

The NASA Worldview app provides a satellite"s perspective of the planet as it looks today and as it has in the past through daily satellite images. Worldview is part of ...

Therefore, in contrast to natural gas and coal-fired power stations, wind and solar power generation systems are significantly affected by meteorological conditions [5]. In ...

Solar power satellite - Download as a PDF or view online for free. Submit Search. ... In addition, solar and wind power generation system affected by the changing of the weather very much, so it has obvious defects in ...

For instance, satellite observations tend to overestimate wind speed [9]. Finally, in [10], the offshore wind power potential over the Mediterranean was examined under current ...

The low density of the solar wind means that it doesn"t transfer a lot of energy to anything it hits, so it won"t make a satellite move, but it will heat up the outer layers of the atmosphere. In times of intense solar wind, the ...

the Solar Wind Power (SWP) Satellite, which can be tailored to the energy needs of an advanced civilization. Unfortu-nately, the remote detection of such a satellite would be very ...

The subsequent Sections 3 Solar power forecasting, 4 Wind power forecasting cover the top 50 most cited results stratified by the number of publications in each year and ...

S/yr (solar masses / year) [11]. Our Sun, for example, emits a solar wind of only ~10-14 MS/yr, and the 0.444 A model of the DHS merely diverts ~10-14 of the Sun"s solar ...

FORGET conventional solar power - the world"s energy needs could be met 100 billion times over using a satellite to harness the solar wind and beam the energy back to ...

A satellite in geostationary orbit (GEO) - a circular orbit around 36,000 km above the Earth - is exposed to the Sun for more than 99% of the time during a whole year. This allows it to ...

Solar wind, flux of particles, chiefly protons and electrons together with nuclei of heavier elements in smaller numbers, that are accelerated by the high temperatures of the solar corona, or outer region of the Sun, to velocities ...

Scientists at Washington State University want to use solar wind to power the entire world. A humongous solar sail could be used to harvest the power of solar winds, generating 1 billion...

Renewable energy facilities, on the other hand, especially those used to produce solar and wind power, ... Fig.

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5 shows the monthly spatiotemporal variation in the satellite ...

Forget wind power or conventional solar power, the world"s energy needs could be met 100 billion times over using a satellite to harness the solar wind and beam the energy to ...

Of all the many spaceflight concepts NASA has studied, the most enormous was the Solar Power Satellite (SPS) fleet. Czech-born physicist/engineer Peter Glaser outlined the ...

The KA-Sat network is also used by satellite communication service provider Euroskypark. Wind turbines in areas without mobile network coverage use satellite-supported communication for control ...

Brooks L. Harrop and Dirk Schulze-Makuch of Washington State University recently proposed a solar wind power satellite to function as an alternative to the futuristic Dyson sphere. [4] Their 8,400 km wide solar sail ...

The search for Dyson Spheres has been propelled not only by the hope of discovering intelligent alien life, but by humanity"s ever-increasing need for energy. However, the Dyson Sphere is ...

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