

# The cost of power generation from space solar power stations

Could space-based solar power deliver cost-competitive electricity generation?

While requiring substantial development, space-based solar power (SBSP) could deliver cost-competitive electricity generation, de-risking the path by providing a future source of clean, base-load energy by 2040 or earlier.

Could space-based solar power be a sustainable alternative?

The OTPS report considered the potential of a space-based solar power system that could begin operating in 2050. Based on that timeline, the report found that space-based solar power would be more expensive than terrestrial sustainable alternatives, although those costs could fall if current capability gaps can be addressed.

Can NASA engage with global interest in space-based solar power (SBSP)?

This study evaluates the potential benefits, challenges, and options for NASA to engage with growing global interest in space-based solar power (SBSP).

What is space based solar power?

A step by step diagram on space based solar power. Space-based solar power (SBSP or SSP) is the concept of collecting solar power in outer space with solar power satellites (SPS) and distributing it to Earth.

How will NASA benefit from space-based solar power?

NASA is already developing technologies for its current mission portfolio that will indirectly benefit space-based solar power, the report found. These include projects focusing on the development of autonomous systems, wireless power beaming, and in-space servicing, assembly, and manufacturing.

Is space based solar power a good idea?

The World Needs Energy from Space Space-based solar technology is the key to the world's energy and environmental future, writes Peter E. Glaser, a pioneer of the technology. Japan's plans for a solar power station in space - the Japanese government hopes to assemble a space-based solar array by 2040. Whatever happened to solar power satellites?

The Value of Our Research. The SSPS has many advantages as follows: it provides power 24 hours a day without being affected by weather conditions, unlike terrestrial renewable energy ...

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The Levelised Cost of Electricity (LCoE)  $\approx$  26/MWh is around one third that of large scale nuclear, on a par with intermittent wind and terrestrial solar and significantly less than other baseload technologies such as

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nuclear ...

Space agencies and nations think that space-based solar power might contribute to the goal of achieving net-zero carbon emissions by 2050. But "we have to prove this is going to actually be a ...

A space-based solar power station is based on a modular design, where a ... significantly reduce the overall cost of space-based solar power. ... generation capacity, which is around 76GW. ...

Isaac Asimov in his April 1941 story "Reason" foresaw energy-beaming power stations in space. ... to space solar power appears to be ready to fall," advised Mankins, and ...

The Space Option Star is one of the designs for space-based solar power selected by the ESA from 200 public submissions. (Supplied: ESA / Arthur R. Woods, International Academy of Astronautics ...

OverviewHistoryAdvantages and disadvantagesDesignLaunch costsBuilding from spaceSafetyTimelineSpace-based solar power (SBSP or SSP) is the concept of collecting solar power in outer space with solar power satellites (SPS) and distributing it to Earth. Its advantages include a higher collection of energy due to the lack of reflection and absorption by the atmosphere, the possibility of very little night, and a better ability to orient to face the Sun. Space-based solar power systems convert sunlight

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The company currently charges under \$3,000 per kilogram of payload, but that's still too much for space-based solar power generation, which will require enormous orbiting ...

It's been 20 years since the first astronauts took up residence on the International Space Station (ISS) and marked the ... Space solar power (SSP) is the catch-all term for orbital systems that ...

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