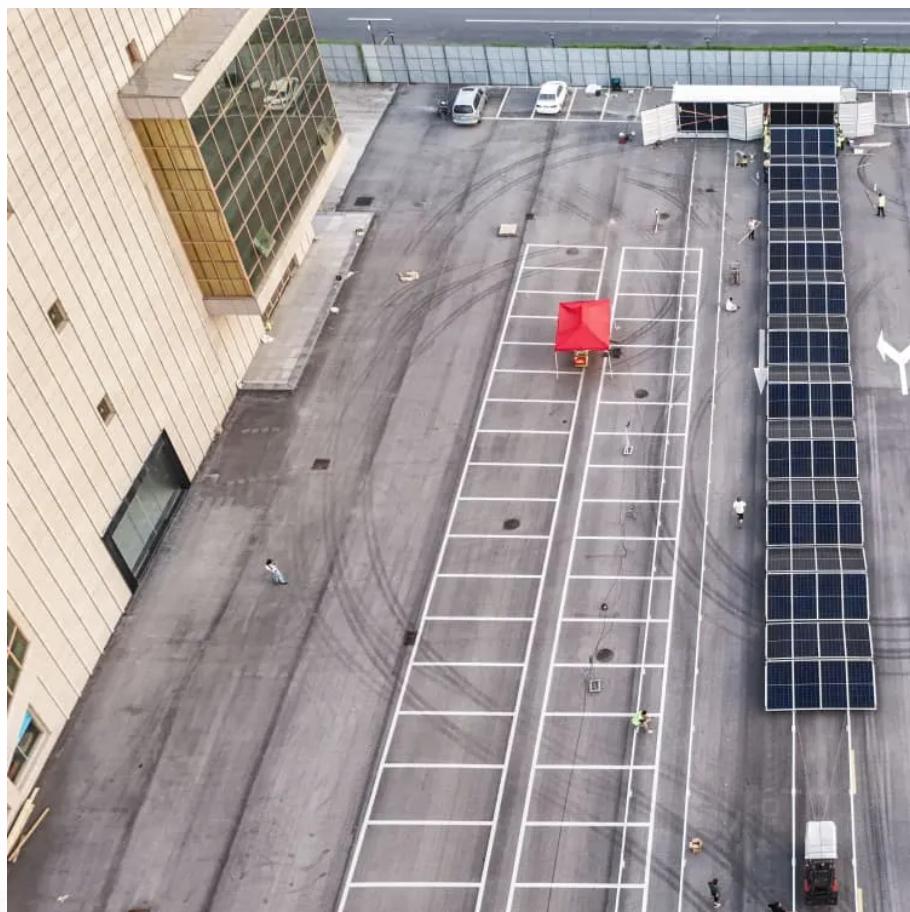




BUHLE POWER

# Solar Space Power Generation System





## Overview

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What is space solar power (SSP)?

Space solar power (SSP) proposes to launch a device into space that collects solar power and beams it down to Earth at radio frequencies. It was proposed decades ago as an alternative power source to meet the need for clean, reliable, and dispatchable energy. However, earlier SSP proposals have faced significant technical or economic challenges.

Can solar power be collected in space?

The system proposed above is an end-to-end solution for clean energy by collecting solar power in space and beaming it down to Earth at RF. Collecting solar power in space offers the benefits of a 24 h collection time, continuity despite adverse weather, and flexibility to decide when and where power is sent.

Which space systems have significant mass and solar panel area?

To provide context, consider two examples of space systems with significant mass and solar panel area: an aggregated mass, the International Space Station (ISS); and a distributed mass, a constellation of 4,000 Starlink v2.0 satellites<sup>4</sup>. The solar panel area is 11.5km<sup>2</sup> for RD1 and 19km<sup>2</sup> for RD2.

Why should solar power and RF conversion be integrated?

Integration of solar power and RF conversion in one element avoids a power distribution network throughout the structure, further reducing weight and complexity. This concept enables scalability and mitigates local element failure impact on other parts of the system.



## Solar Space Power Generation System



### High-Power Space Solar Power Generation System

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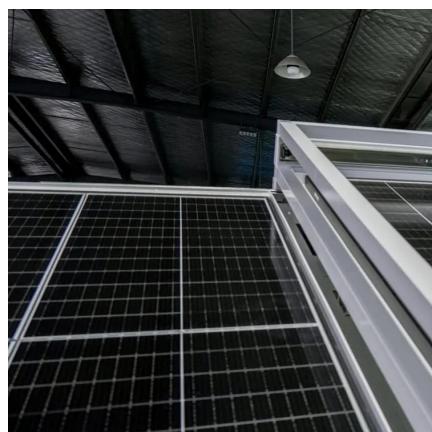


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