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HIGH ORBITING CENTRAL SOLAR POWER STATION FOR WIRELESS POWER TRANSMISSION

Abstract

Space-based solar power (SBSP, SSP) is the concept of gathering and distributing solar electricity in outer space using solar power satellites (SPS). The benefit of collecting solar energy in space is a higher collection of energy owing to the absence of atmospheric reflection and absorption, the potential of no night, and a better capacity to orient to face the sun. The goal of this study is to build a high-capacity space-based solar power station in space that can wirelessly transmit power to large distances. In this era of space exploration, more and more missions to neighboring planets like Mars will be launched. As we know these spacecrafts consume a lot of fuel to launch from Earth and travel into space, the research also tries to lower the payload of spacecraft by reducing the number of solar panels they carry. A receiver device on the spacecraft can convert the incoming power into energy that can be utilized to power the spacecraft. To minimize disruptions caused by space debris, the station would be placed in an orbit of a radius of at least 1.2 lakh kilometers. The space-based solar station, in other words, will provide energy for future space missions, minimizing the requirement for solar panels on spacecraft for future exploration missions. The orbiting solar station captures as much sunlight as possible and stores it for wireless transmission through high-power lasers. The goal of this research is to provide a concept for a power station that will help us exploit free and renewable energy to its maximum potential on Earth while also making future space travel easier and more efficient.