

IAF SPACE POWER SYMPOSIUM (C3)
Wireless Power Transmission Technologies and Application (2)

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WIRELESS POWER TRANSFER TECHNOLOGY USING SOLAR POWER HARNESSING
SATELLITE AND RECTENNA.

Abstract

In the foreseeable future, the demand for electricity is going to surpass its production. It is therefore of prime concern to look for other ways to generate power, which meets the growing needs and is in the form of clean and sustainable energy.

Solar Power emerges as a feasible option. But it's harvested only during peak day light hours which is again susceptible to changes in the weather. Thus, Space solar power emerges as a suitable energy source. The major challenge associated with Space Solar Power system is the methodology to transport the collected energy to Earth.

This paper opines the viable approach of Wireless Power Transmission from Space-to-Earth using Solar Power harnessing Satellite. This approach makes use of the distributed working of Lasers and Microwaves. The proposed hybrid technology ensures efficiency by the design of an optimal Rectenna, a combination of a rectifier and an antenna, which is one of the most promising methods to procure wireless energy. Further, the technology will operate at safe wavelengths and intensities which makes it more feasible.

The paper focuses on the technique of harvesting power from Solar Power harnessing Satellite with inclusion of vital parameters such as cost, size, efficiency, transmission and distribution losses etc., so chosen in order to meet the requirements while pertaining to all the constraints. Moreover, the future possibilities and hurdles associated with Wireless Power Transfer and the solutions to the same has been highlighted.