

# Wireless Power Transmission using SPS

Karan Sharma<sup>1</sup>, Prateek Saini<sup>1</sup>, Naveen Jangid<sup>1</sup>, Dr. Himani Goyal Sharma<sup>2</sup>

<sup>1</sup>B.Tech Scholar, <sup>2</sup>Professor

<sup>1,2</sup>Poornima College of Engineering, Jaipur, Rajasthan, India

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## ABSTRACT

In this paper, we present the idea of sun based vitality satellites - sun oriented cells in the satellite Convert daylight into power, which will transform into radio recurrence vitality, at that point a collector will achieve the site Earth was re-jolted by utilizing the reception apparatus with the innovation of remote and accepting it Power transmission is transmitting power (i.e., as microwave for lessening transmission and dispersion. In this paper we want to elaborate all the aspect related to the wireless power transmission using solar power satellite by which the overall efficiency, reliability will be increased.

**Keywords:** Microwave generator, Nikola Tesla, Solar Power Satellites (SPS), Transmitting antenna, Wireless Power transmission (WPT)

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## 1. INTRODUCTION

The Solar Power Satellite vitality framework is to place goliath satellites, secured with huge ranges of sun based cells, in geosynchronous circle 22,300 miles over the Earth's equator. Each satellite will be lit up by daylight 24 hours every day for a large portion of the year. In view of the 23° tilt of the hub, the satellites pass either above or underneath the Earth's shadow. [1]

It is realized that electromagnetic vitality likewise connected with the proliferation of the EM waves. We can utilize hypothetically all electromagnetic waves for a wireless power transmission (WPT). The distinction inside the WPT and correspondence frameworks is just effectiveness. [2]

As the interest expands step by step the power age just as the power misfortune is expanded. The productivity of intensity transmission can be improved to certain dimension by utilizing high quality composite overhead conductors and underground links that utilization high temperature super conductor. [3]

## 2. Microwave power transmission's antennas

All radio wires can be connected for both the microwave power transmission framework and correspondence framework, for example, Yagi- Uda radio wire, horn reception apparatus, explanatory receiving wire, micro strip receiving wire, staged exhibit receiving wire or any other kind of radio wire. To fixed focus of the MPT framework, we generally select an expansive illustrative antenna. [2]

Microwave power transmission is rooted in the source of power .Most of the energy loss during transmission is through wireless power transmission.

## 3. Solar Power Satellite

THE numerous spaceflight ideas NASA has considered, the most gigantic was the Solar Power Satellite (SPS) armada. Czech-conceived physicist/engineer Peter Glaser plot the idea in a short article in the regarded diary Science in November 1968, and was granted a patent for his innovation on Christmas Day 1973. In October 1976, the U.S. Bureau of Energy (DOE) and NASA started a three-stage, four-year joint investigation of the SPS idea. All out examination cost was \$19.6 million, of which DOE paid 60%. [4]

## 4. Technology development

Advancement has been made in various advances pertinent to space sun based power and the improvement of a monetary sunlight based power satellite since the Reference System Photovoltaic cell productivity has ascended from around 14% for the single precious stone silicon base-lined in the DOE/NASA concentrate to 27.4% acquired with daylight thought through an extended focal point exhibit Fresnel concentrator onto a triple intersection sun powered cell and significantly higher efficiencies are being looked for. Inflatable structures have been shown in space loaning assurance to ideas for lower mass satellite structures. Drive, warm administration and power the executives advances

have all progressed. Framework advancements, for example, mechanical technology for gathering and fix of secluded structures have grown up Space transportation situations important to help the enormous dispatch prerequisites important to sunlight based power satellite sending are being created alongside the new, reusable dispatch innovation important to bring transportation cost down to monetarily practical dimensions.[4]

### 5. Capacitive Coupling

Capacitive is the transmission of energy within the network of electrical equipments or distant networks by means of change in current between the circuit, induced by the EF.

### 6. Microwave Power Transmission In SPS

The key microwave parts in a WPT framework are the transmitter, bar control and the recipient called rectenna. At the transmitter, magnetrons and klystrons which are called as microwave control tubes are utilized as RF control sources. Rectenna is a part one of a kind to WPT frameworks. The accompanying segment depicts these segments in detail. [3]

### 7. Applications

The SPS is relied upon to acknowledge around 2030. Prior to the acknowledgment of the SPS, we can consider the other utilization of the WPT. In hate years, versatile gadgets advance rapidly and require diminishing force utilization. It implies that we can utilize the dif intertwined feeble microwave control as a power wellspring of the versatile gadgets with low power utilization, for example, RF-ID. The RF-ID is a radio IC-pull with remote power transmission and remote data. This is another WPT application like telecom. [1]

### 8. Advantages

Remote Power Transmission framework would totally dispenses with the current high-pressure control transmission line links, towers and sub stations between the creating station and customers and encourages the interconnection of electrical age plants on a worldwide scale. It has more f reedom of decision of both recipient and transmitters. Indeed, even portable transmitters and recipients can be picked for the WPT framework. [1]

### 9. Disadvantages

The Capital Cost for reasonable usage of WPT is by all accounts extremely high and the other burden of the idea is interference of microwave with present correspondence frameworks. Warmth decrease is most critical issue in space. All lost power changes over to heat. We need extraordinary warmth decrease framework in space. In the event that we utilize high ef f icient microwave transmitters, we can diminish weight of warmth decrease framework.WPT application like telecom. [1]

### 10. Conclusion

A remote power exchange framework is fit for exchanging the required measure of intensity which considered effectively with reverberation. The mechanical improvement in Wireless Power Transmission (WPT), points of interest, weaknesses, organic effects and uses of WPT are additionally talked about in this paper.

### 11. References

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