Space Power Transmission via Rectenna

Abstract

With an increasing demand for energy and excessive usage of conventional resources, there has been a shift towards non-conventional resources like solar energy. Although solar energy is one of the most abundant non-conventional energy source, it has a lower efficiency than fossil fuels because it can only be utilized during the day with around 30% efficiency. This paper is concerned with the idea of setting up a solar plant in space and transmitting power via radio frequency through a phased array antenna, thereby allowing functionality all day. The electromagnetic wave is then received by a rectenna (rectifying antenna)and then converted to D.C. The advancement in phased array antennas and rectenna have made it possible for this to become a reality and can improve the overall efficiency The hardware demonstration will involve a small scale model of this concept which will be used to light up a LED. It's efficiency will then be compared with other antenna models. This proposed concept will contribute to the energy utilization area and hope to alleviate the energy demand.

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