

SPACE POWER SYMPOSIUM (C3)
Wireless Power Transmission Technologies, Experiments and Demonstrations (2)

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REBEAM SPACE - CREATING AN INTERCONTINENTAL WIRELESS ENERGY NETWORK

Abstract

1.2 Billion people today live without access to electricity. Studies suggest that If every person had access to 4000 kWh of energy, their development index would be on par with the current developed world. Even with today's technology, a solar farm half the size of the Mojave Desert is enough to power the entire world. What prevents this massive scale of renewable energy expansion is the geographic divide to distribute energy between places of energy abundance and the place of consumption.

ReBeam Space is developing wireless technology for distributing energy on an intercontinental scale. Our mission is to build a wireless energy network to move energy from abundant sources, such as solar energy available in deserts, to energy scarce locations. We plan to use microwaves generated by large solar farms (1GW) by retrofitting them with microwave transmitters to beam energy to a reflector in Space and bounce it back to another location on Earth, converting it back into direct current.

If three solar farms are placed eight hours apart, they could power the world continuously with clean energy without any storage. The system would cost 1/10th of a transmission line and offer superior efficiencies. This is an opportunity to not only connect the solar farms to areas without access to electricity, but also replace nuclear, coal and hydro grids by the wireless energy produced from solar farms in cities worldwide. An intercontinental energy network will help developing countries in high solar irradiance locations (energy rich regions) to monetize these regions, creating a new clean energy economy. Similarly, the adopters of this solution will reap the benefits of leapfrogging to clean energy and skipping nuclear and coal altogether (e.g. most of Africa went straight to cell phones instead if landlines).