

Japanese firm wants to transform the Moon into a giant solar power plant

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The Luna Ring: Electric power generated by a belt of solar cells around the lunar equator would be transmitted and beamed to the Earth from the near side of the Moon. Image credit: Shimizu Corporation.

(PhysOrg.com) -- The Shimizu Corporation, a Japanese construction firm, has recently proposed a plan to harness solar energy on a larger scale than almost any previously proposed concept. Their ambitious plan involves building a belt of solar cells around the Moon's 6,800-mile (11,000-kilometer) equator, converting the electricity to powerful microwaves and lasers to be beamed at Earth, and finally converting the beams back to electricity at terrestrial power stations. The Luna Ring concept, the company says, could meet the entire world's energy needs.

Shimizu envisions that robots would play a vital role in building the Luna Ring. Teleoperated 24 hours a day from the Earth, the robots would



perform tasks such as ground leveling and assembling machines and equipment, which would be done in space before landing them on the <u>Moon</u>. A team of astronauts would support the robots on-site.

Due to the massive amount of solar panels and other materials needed for the project, Shimizu proposes that lunar resources should be used to the fullest extent possible. The company's plans call for producing water by reducing <u>lunar soil</u> with hydrogen imported from Earth. Lunar resources could also be used to make cementing material and concrete, while solar-heat treatments could help produce bricks, glass fibers, and other structural materials needed for the project.

The Luna Ring itself would initially have a width of a few kilometers, but could be extended up to 400 kilometers wide. The electric power generated by the solar cells would be transmitted by electric cables to transmission facilities on the near side of the Moon, which is constantly facing Earth. After the electricity is converted into microwave beams and laser beams, 20-kilometer-diameter antennas would beam the power to receivers on Earth. A guidance radio beacon would ensure accurate transmission to the receivers. The energy would then be converted back to electricity and supplied to grids, or possibly converted to hydrogen for fuel or storage.

Shimizu points out that one of the biggest advantages of the Luna Ring is that, since the Moon has virtually no atmosphere, there is no bad weather or clouds that could inhibit the efficiency of the <u>solar panels</u>. As such, the Luna Ring achieves 24/7 continuous clean energy generation, potentially ending our reliance on limited natural resources.

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