

The Use of Lunar Resources for Energy Generation on the Moon Dr. Alex Ignatiev, Lunar Resources (alex@lunarresources.space)

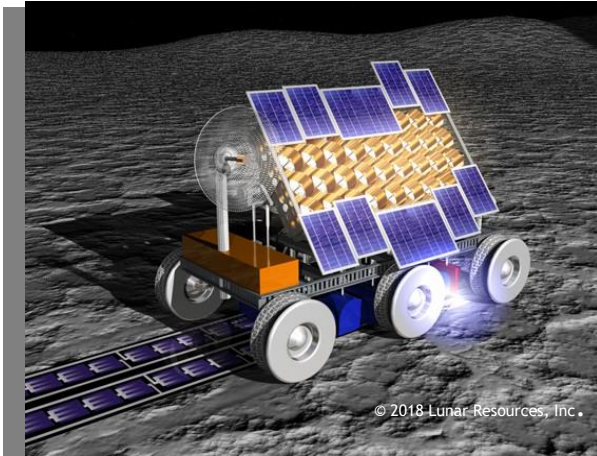


Figure 1, Lunar Resources Solar Cell Paver concept surface vehicle

Introduction: The indigenous resources of the Moon can be used to develop an electrical energy system for the Moon. Based on available lunar resources a lunar power system founded on the fabrication of solar cells by thin film growth technology in the vacuum environment of the Moon can be generated. This can be accomplished by the deployment of a moderately-sized (~200kg) crawler/rover on the surface of the Moon with the capabilities of preparation of the lunar regolith for use as a substrate, evaporation of the appropriate semiconductor materials for the solar cell structure directly on the regolith substrate, and deposition of metallic contacts and interconnects to finish off a complete solar cell array. The direct fabrication of an electric power system on the Moon would require the transportation of a much smaller mass of equipment to the Moon than would otherwise be required to install a complete electric power system brought to the Moon from the Earth and emplaced there. It would also result in an electric power system that was repairable/replaceable through the simple fabrication of more solar cells, and that would yield an energy-rich environment for the Moon and cis-lunar space.

References:

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