

Text C Hospitable environment

Unlike Earth, the surface of the moon is compatible with the construction of extremely large areas of thin solar collectors and their dependable operation over many decades. No oxygen, water, atmospheric chemicals, or life is present to attack and degrade thin solar collectors. No wind, rain, ice, fog, sleet, hail, driven dust, or volcanic ash will coat and mechanically degrade them. Moonquakes and meteor impacts produce only tens of nanometers of ground motion. Micrometeors erode thin solar collectors less than 1 mm every 1 million years.

The production machinery constructs the lunar power bases primarily from materials that are widely available on the moon. Bulk soil and separated soil fractions can be melted by concentrated sunlight and formed into thin glass sheets and fibers or sintered into rods, tubes, bricks, and more complex components. Silicon, aluminum, and iron can be chemically extracted from lunar soil for fabrication of solar cells. Trace elements can be brought from Earth for doping solar cells. It is estimated that a kilogram of materials transported from Earth to the moon would result in the delivery of 200 times as much electric energy to Earth as a kilogram of a solar-power satellite.

The LSP System is a reasonable alternative to supply Earth's needs for commercial energy without the undesirable characteristics of current options. The system collects sunlight on the moon's surface, converts it to usable energy, and beams the energy to receivers on Earth. The system can be built on the moon from lunar materials and operated on the moon and on Earth using existing technologies.