

ECONOMIC PURPOSE CARD

Energy Collection: Solar

Solar energy is energy that comes from the sun. This energy is in the form of solar radiation and can be turned into solar electricity.

There are several reasons to gather solar energy from outside Earth's atmosphere. The amount of solar radiation in space is five to eight times greater than on Earth's surface. Without clouds, or seasons, or nighttime, space-based solar panels would receive a more constant solar radiation. These solar panels could be placed on a satellite floating above a planet or the Moon. Or it could be stationed on the surface of a planet or the moon.

The solar energy available in space is billions of times greater than what we use today. The lifetime of the sun is estimated to be 4-5 billion years, making space solar power truly a long-term energy solution. Also, solar power from space would solve the energy and greenhouse gas emissions problems that we have today. Space solar power can provide large

amounts of energy to every person on Earth, with very little impact on the environment. Scientists have already developed the methods to transfer the space solar energy to Earth. It is very similar to the way satellites transfer information to cell phones.

The only real big problems with starting a space-based energy system are costs. The money necessary for construction, transportation, and the labor is very high. Current launch vehicles are expensive, and launch vehicles may cause pollution problems of their own. Launching the space vehicle, setting up the panels, and maintaining a solar energy farm in space would be extremely expensive. Another consideration is location. It would be much cheaper to build space-based solar energy system on the moon than on Mars because of the distance. Given all these considerations, a solar energy system in space would be very expensive.

