Paper ID: 97436
oral
student

IAF SPACE EXPLORATION SYMPOSIUM (A3)
Interactive Presentations - IAF SPACE EXPLORATION SYMPOSIUM (IP)

Author: Ms. NITHYASRI S
India

MINING ON THE MOON

Abstract

The pursuit of clean energy to protect the environment has now become a requirement. Nonrenewable energy sources on Earth are depleting at an alarming rate, prompting scientists to look to the Moon for a source of renewable energy.However, obtaining energy from the Moon is not a novel idea. For several decades, the Moon's energy has been used to power devices by harnessing its gravitational pull. Tidal power plants, like hydroelectric dams, have been designed to trap water during high tide and then release it through turbines during low tide.Mining on the Moon is still a distant possibility, but several research projects are underway to assess its feasibility. The Moon has an abundance of resources. The Moon has been shown to contain platinum, silicon, iron, titanium, ammonia, mercury, and even water. Helium-3, on the other hand, is a resource that is scarce on Earth but abundant on the Moon.Helium-3 ions were discovered in the upper crust of the Moon after the Apollo 17 lunar mission returned soil samples from the Moon.The possibilities are astounding. The entire scheme is based on a fusion reactor, which is not yet a viable technology. The reactor would combine helium-3 ions to produce helium-4 (normal helium) and energised protons. The process would emit no greenhouse gases, according to Energy Bulletin. It would, however, generate a tremendous amount of energy. • There are two sides of mining the moon • 1)We can transport He3 from moon to earth to fullfill the needs of future generations,because our non renewable sources are already depleting • 2)If we colonise moon,these renewable energy can protect its environment and these types of energy production are safe and forever. • Helium-3 neutron release isn't a peoblem.There are no other radioactive by products to deal with,either.This is a massive advantage when compared to some other experimental fusion reactions,such as fusing deuterium and tritium According to Artemis, the protons produced by a fusion reactor fed by the moon's available He3 could produce ten times the power of the combustion of all fossil fuels on Earth.He3 has the potential to provide more energy, as well as more renewable energy, than current power sources. And because all of that energy would be so clean, energy credits would be obsolete.