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NUCLEAR FUSION AND THE MOON AS A SOURCE OF POWER FOR THE WORLD— POSSIBILITY OF HELIUM3 FUSION WITH HELIUM3 AS A LUNAR RESOURCE

Abstract

One of the biggest challenges for our world is the greater demand for energy that seems to be increasing every day. Moreover, electricity which is the most widely used form of energy in the world is created from fossil fuels. Unfortunately, fossil fuel supplies are dwindling rapidly and the most optimistic projections state that fossil fuels won't be around at the end of the century. Moreover, the low efficiency of renewable energy sources and the cleanliness issues with fission energy creates a dilemma for solving the world's energy future. In addition, the carbon footprint of energy production is effecting our environment more and more every day. The only probable source of clean and unlimited supply of energy seems to be fusion, but the availability of clean fusion fuels and thermodynamic considerations also make that a distant possibility. Fortunately, the recent developments and findings in aerospace technology can shed some light on the solutions to this matter. After some recent surveys conducted by NASA and the various Chang E missions to the moon; recent findings suggest that the moon is a good source of 3He, which can be used for a clean Fusion reaction. The usage of 3He allows for aneutronic fusion reactions to take place and as a result, secondary radiation effects resulting from Tritium as well as neutron penetration are avoided. Recent findings suggest that suggest that the moon's regolith may contain overabundant source of 3He, which can be extracted and mined with a relatively simple space technology. Thus, as a result, the presence of 3He can allow for clean energy production on the moon as well as on Earth. However, a global effort needs to be made for the mining and processing of Helium3 on the moon. The paper discusses the technological and strategic considerations on this matter.