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COMMERCIAL LUNAR RESOURCE EXTRACTION SUPPLYING A LEO PROPELLANT DEPOT

Abstract

There exists increasing evidence that a market for a propellant depot in Low Earth Orbit (LEO) could become a realistic, financially viable option. Recently, at cis-lunar marketplace held in Centennial, CO, the United Launch Alliance announced that it was willing to pay for propellant in LEO. Prices in LEO were stated to be bid in a range between 3,000/kg and 7,000/kg. Propellant in Lunar Orbit was bid at 1,000/kg. In this case study, the author utilizes the term bid, since that is the user's proposed price; since there will likely be a plethora of extraction systems' costs for a commercial development. The throughput, size, power, propulsion and extraction system based transportation system for the lunar volatile return concept. The net result is that sales of propellant for 4,500/kg represent an interesting commercial prospect.