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A COMMERCIAL CASE FOR ISRU PRODUCTION FOR USE IN SUPPORT OF FUTURE SCIENCE
AND EXPLORATION MISSIONS.

Abstract

This paper will present the commercial case for ISRU production, primarily in support interplanetary exploration. A commercial ISRU operation can reduce cost and risk of mission success by propositioning fuel and life support requirements where needed, unlocking the maximum science and exploration envelope as fuel and life support would not be limited by mission parameters, but provided as a service that could extend successful missions beyond the initial mission profile.

Additionally a best cost analysis for ISRU production in various locations including proposed mission material demands, site selection, quantification of key costs for ISRU methodologies and analysis of ISRU deliverables possible for several mission profiles, including scientific manned missions.

Commercial viability is analysed from key areas of legal considerations, total project risk, possible project NPV, funding probability and total available ISRU reserves.