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A TECHNO-ECONOMIC LEGAL ANALYSIS: DEVELOPMENTS IN U.S. TECHNOLOGY, LAW AND  
POLICY GOVERNING SPACE RESOURCE COMMERCIAL EXPLOITATION

**Abstract**

In the United States, a number of for-profit private sector companies are investing in and developing technologies with the goal of exploitation, on a for-profit commercial basis, celestial in-situ resources. Recent technological developments are impacting legal and policy developments. For example, the United States Congress has recently considered legislation on the subject of asteroid in-situ resource exploitation. A number of U.S. Government agencies have also received requests from U.S. private companies to provide regulatory guidance on their proposed in-situ activities.

While there are a number of international treaties governing activities in outer space, there is no consensus as to the legality neither of in-situ resource commercial exploitation nor of the rules that should govern commercial exploitation of celestial in-situ resources. In light of the lack of an international framework, interpretation and development of the law will occur at the national level. National legal interpretations, either through legislation, regulation, policy, or judicial proceedings will drive the question of whether and how commercial in-situ resource exploitation will occur.

This paper examines recent development of U.S. technology, law and policy governing space resource commercial exploitation, and assesses their implications both in the United States and internationally. Implication on private sector investment and innovation on regulatory uncertainty related to in-situ resource exploitation are also addressed.