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SPACE SOLAR POWER ON THE MOON: INTERNATIONAL POLICY AND POLITICAL
CHALLENGES

Abstract

Space solar power has long been discussed as a potential renewable energy resource for use on Earth, but recently it has gained attention as a potential power source for Lunar exploration and development. Space solar power could be used to provide power safely and efficiently to areas in perpetual shadow or regions where sunlight is scarce. There may be advantages for nations that are first to develop and implement this technology in terms of identifying and occupying optimal locations for solar collection plants on the Lunar Surface. Many also see Lunar space solar power as a testing ground for implementing this technology on Earth. In the long run, space solar power has the potential to overtake fossil fuels and could become the new leading source of power for the world in the next few decades. This potential provides a significant incentive to rapidly develop this technology. These benefits have caused international actors such as the United States, China, and Australia to investigate different solar collection methods.

While the technical challenges are significant, the development of Space Solar Power has also been hampered by concerns related to safety and security, as well as other international political and policy issues. This paper examines whether these issues may also pose a challenge for the development of Lunar-based Space Solar Power systems. We look in depth at nations and commercial actors currently interested in the concept of Space Solar Power on the Moon. We examine each of the potential policy issues in depth, drawing on debates that have occurred in the terrestrial context, as well as emerging debates specific to Lunar development, determining which may pose the greatest barriers for future development. We conclude with recommendations on actions that nations and other actors may take to address these issues proactively, paving the way for this innovative new technology.