SPACE POWER SYMPOSIUM (C3)
Architectures, concepts and systems for space power (3)

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COMPARATIVE ECONOMIC ASSESSMENTS OF SPACE SOLAR POWER (SSP)

Abstract

Space Solar Power (SSP) is a concept that in one application would involve beaming energy from space to the Earth. There have been multiple, relevant studies of Space Solar Power dating from the 1970s (NASA/DoE), 1990s (NASA Fresh Look, International Space University), and 2000s (NASA SSP Exploratory Research and Technology, U.S. DoD National Security Space Office, European Space Agency). These studies included technical and economic discussion of SSP. This paper is a review of several of these studies specifically focusing on the economics of Space Solar Power (SSP). The economics involved include both cost estimates for such systems and associated financial analysis. The financial analysis would be as a government project (cost to benefit analysis) or as a fully commercial venture (commercial discounted cash flow analysis). A purely commercial SSP system may not be viable. Government-funded research and development may make a commercial business case more plausible. These and other barriers to full commercial viability of SSP will be examined from a relatively comprehensive assessment of past SSP studies. The results from these past studies will be used to guide an updated economic analysis of a fully commercial, large scale SSP service provider. A brief comparative assessment of SSP versus other terrestrial energy plants will also be provided.