

35th IAA SYMPOSIUM ON SPACE POLICY, REGULATIONS AND ECONOMICS (E3)  
Economic analysis of both actual and potential future benefits from space activities and applications to  
nations and peoples. (3)

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SPACE BASED SOLAR POWER: UPDATES TO ECONOMIC FEASIBILITY STUDIES

**Abstract**

Space-based solar power (SBSP) is the concept of gathering power in space and transmitting the power wirelessly to users on Earth or elsewhere in space. SBSP has seen renewed interest from governments, businesses, and universities for various reasons, including persistent operations in space, as well as achieving carbon neutrality targets. Several major government agencies in Europe, Asia, and the Americas have renewed their SBSP investigations, and hundreds of millions of dollars have been donated to universities to advance the technical state of the art. Much of the existing literature is from NASA's prior investigation into this field in the 1990s. Given the renewed interest and lack of up-to-date research, this study identifies and updates some key system parameters to update the designs to current performance levels. These updated performance values allow us to evaluate how the costs and benefits of SBSP compare to other sustainable and grid scale energy sources. This study will also compare its results to known measures of other energy sources, as well as comparable energy "mega projects" as found in the current body of peer-reviewed research. From these different angles we identify the state of the most sensitive parameters of the designs and seek to answer whether it is worthwhile for NASA to invest in SBSP related technologies or not.