

## SPACE POWER SYMPOSIUM (C3)

Space-based Solar Power Architectures – New Governmental and Commercial Concepts and Ventures (1)

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## ANALYSIS AND COMPARISON OF VARIOUS SPS CONCEPTS

**Abstract**

Solar Power Satellite (SPS) also named Space Based Solar Power (SBSP), is becoming one of the most prospective energy in future and is obtaining more attention. There are many development plans in the world. The most important event is that Japan has declared that a 1GW SPS will be developed in the next 30 years. There are tens of typical SPS concepts were proposed, including the early 1979 SPS Reference Model, Sun Tower concept, Sun Disk concept, Integrated Symmetrical Concentrator concept, Abacus SPS concept, proposed by NASA, SPS 2000 concept, SPS2001 concept, Tethered-SPS concept, LPT SPS concept, proposed by JAXA and Sail Tower SPS concept proposed by ESA.

As one of the most important and the developing space country, SPS is attracting more attention in China. As the first step, aerospace engineers in China have researched and analyzed some SPS concepts proposed comprehensively. By comparison, the CAST SPS research group in China considered that there are several primary aspects to classify the SPS concept, include configuration, running orbit, solar power generation technology, wireless power transmission (WPT) technology, and power management technology. The advantage and disadvantage of various SPS concepts are analyzed and the ideal SPS concepts are suggested. This work will be the foundation for developing SPS in China.