

IAF SPACE POWER SYMPOSIUM (C3)  
Solar Power Satellite (1)

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UPDATED STATUS OF HIGH POWER ELECTRIC GENERATION AND WPT DEMONSTRATION  
IN SPACE FOR SPS**Abstract**

Space Power Satellite (SPS) is a huge spacecraft to utilize solar energy in space and to supply electric power to the electric grid on the ground. According to various SPS development roadmaps proposed by IAA, Japan and China, the technology demonstrations in different level, including component level, subsystem level and system level, need to be carried on in space. Based on the proposed SPS roadmap of China, an important technology demonstration mission should be carried out after 2025. Based on the development of some key technologies, the high power electric generation and WPT demonstration mission is proposed. The mission includes two spacecraft, one is the primary spacecraft and the other is the receiving spacecraft. The primary spacecraft includes two different high power electric generation subsystems, the microwave energy transmission subsystem, the laser energy transmission subsystem and the spacecraft platform. The receiving spacecraft includes the microwave energy receiving subsystem, the laser energy receiving subsystem, the scientific payloads and the spacecraft platform. The mission will demonstrate 10 kW thin-film solar array technology, 10 kW OMEGA concentration solar array technology, 300 V high voltage electric generation technology, kW laser transmission technology, kW microwave transmission technology and large scale structure technology, etc.