News Release

Nippon Electric Glass Co.,Ltd.

August 8, 2011

# NEG Delivers Ultra-Thin Lightweight Mirrors for JAXA's Space Solar Power Systems

Nippon Electric Glass Co., Ltd. (NEG) has delivered to the Japan Aerospace Exploration Agency (JAXA) ultra-thin lightweight mirrors for use in space solar power systems (SSPS) currently under research by JAXA.

SSPS collect and transmit space solar energy to a receiving facility on Earth, where the energy is converted into electricity and hydrogen. SSPS employ a lightweight mirror to collect solar light. The mirror NEG delivered on this occasion will be used in trial manufacture of a mirror unit.

The ultra-thin lightweight mirror we delivered to JAXA uses lightweight thin glass sheets as the substrate, for ease of transport into outer space. A reflective coating covers the glass surface, without loss of surface uniformity. The mirror was created using our ultra-thin glass-sheet manufacturing technology and coating technology. Ultra-thin glass sheets of four different sizes, including a 500 mm × 500 mm × 100 μm sheet, are used for the substrate, covered with either of the following two types of reflective coating, according to purpose.

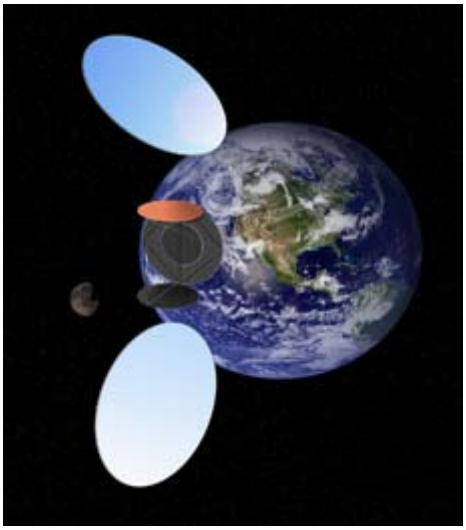
**1. All-wavelength reflective coating (for microwave-type SSPS)**

The all-wavelength reflective coating, designed to enable the SSPS to make the best use of solar light over a wide range of wavelengths, comprises a highly reflective silver coating as the base, which is covered by a protective coating. Light reflected by this type of reflective coating is irradiated to the solar cell in the SSPS, converted to microwaves and transmitted to Earth. The wavelength range most suitable for solar power generation is 400 to 1500 nm. This reflective coating achieves a mean reflection rate of 95% or more of solar light in this wavelength range.

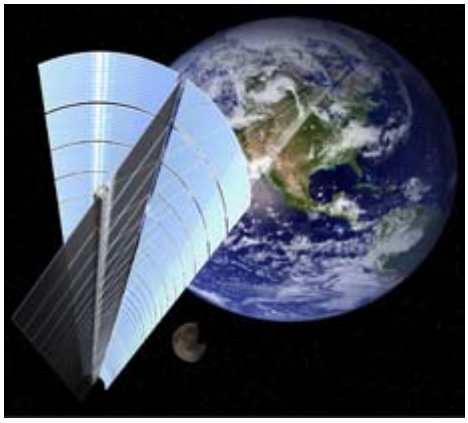
**2. Selective-wavelength reflective coating (for laser beam-type SSPS)**

The selective-wavelength reflective coating reflects only high-energy light at a high rate, to enable generation of laser beams for transmitting solar energy to Earth. The coating transmits unneeded infrared rays to prevent heat accumulation since heat release is difficult in space. This type of reflective coating, which comprises a lamination of 50 thin dielectric layers, exhibits a mean reflection rate of 96% or more of solar light in the 400 to 950 nm wavelength range which is used for laser oscillation.

[Reference pictures]



Microwave-type SSPS
(Courtesy of JAXA)



Laser beam-type SSPS
(Courtesy of JAXA)