

Concentrating Solar Power (CSP) Tower Technology B-Roll

Scene-by-Scene Description

Get the facts behind the footage available on the U.S. Department of Energy's (DOE) Office of Energy Efficiency and Renewable Energy (EERE) B-Roll Web site at eere.energy.gov/news/b_roll.cfm.

Video Title: CSP Tower B-Roll

Video Only/No Audio

Location: CSP Tower Solar Farm, Lancaster, California

Shoot Date: April 9, 2010

Total Running Time: 4:50

Scene 1: 00:05: Wide crane shots of CSP power tower plant. The southwest U.S. is ideal for power towers because of its significant solar radiation and relatively low land costs.

Scene 2: 02:21: Wide shots of tower receiver. The receiver contains a heat-transfer fluid that heats water to generate steam. While early power towers used water as the heat-transfer fluid, current systems utilize molten nitrate salt for its superior heat transfer and energy storage capabilities.

Scene 3: 03:05: Close-up shots of tower receiver.

Scene 4: 03:46: Various reflector mirror shots. Hundreds to thousands of sun-tracking mirrors (heliostats) are used to reflect incident sunlight onto the receiver.

Scene 5: 04:26: Power generator at CSP power tower plant. The tower concept achieves very high temperatures, thereby increasing the efficiency of energy conversion while reducing the cost of thermal storage.

Learn More about CSP Tower Systems

Concentrating solar power (CSP) plants produce electric power by converting the sun's energy into high-temperature heat using various mirror configurations. The heat is then channeled through a conventional generator to produce electricity. When used in utility-scale applications, CSP technologies offer a clean alternative to burning fossil fuels, thus helping mitigate climate change.

Solar power towers are CSP systems that use a large field of flat, sun-tracking mirrors known as heliostats to focus and concentrate sunlight onto a receiver on the top of a tower. A heat-transfer fluid heated in the receiver is used to generate steam, which is used in a conventional turbine generator to produce electricity. The thermal storage capability of the system allows it to continue to reliably dispatch electricity at night or in times of cloudy weather.

The EERE Solar Energy Technologies Program (SETP) promotes the advancement of cost-effective, highly efficient solar energy technologies like the CSP tower to make them competitive in the power market. More information on CSP systems and DOE solar goals, programs, and initiatives can be found on the SETP Web site at eere.energy.gov/solar.