

Concentrating Solar Power Generation: Parabolic Troughs – Nevada 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: Copper Mountain Solar Farm B-Roll

Video Only/No Audio

Location: near Boulder City, Nevada

Shoot Date: June 17, 2010

Total Running Time: 2:15

Scene 1: 00:05: Wide shots of a large-scale parabolic trough concentrating solar power (CSP) farm.

Scenes 2 and 3: 00:30: The solar farm shown in close-up.

Scene 4: 01:35: Transmission lines coming from the farm transmit generated electricity to the power grid.

Learn More about Parabolic Troughs

Concentrating solar power (CSP) technologies use mirrors to reflect and concentrate sunlight onto receivers that collect solar energy and convert it into heat to produce electric power. Compared to fossil-fueled power plants, CSP plants generate significantly lower levels of greenhouse gases and other emissions, making them an optimal choice for large, utility-scale applications.

One type of CSP technology is the linear concentrator system, which collects the sun's energy using long, rectangular curved mirrors tilted toward the sun. These mirrors focus sunlight on tubes (or receivers) that run the length of the mirrors. The reflected sunlight heats a fluid flowing through the tubes, which is then used to boil water in a steam-turbine generator to produce electricity. Parabolic trough systems are a form of linear concentrator systems in which receiver tubes are positioned along the focal line of each parabolic mirror. Of all CSP systems, parabolic trough solar technology offers the lowest-cost solar electric option for large power plant applications.

Through the USA Trough Initiative, the National Renewable Energy Laboratory (NREL) supports DOE's efforts to expand U.S. industry participation and competitiveness in worldwide parabolic trough development activities. NREL's research focuses on advancing state-of-the-art parabolic trough technology, integration, analysis, and services. More information on NREL's effort to make the parabolic trough and other advanced CSP technologies cost-effective in today's energy market can be found at www.nrel.gov/csp/.