

Press Release

Dept. of Energy Grant Spurs Development of Glass-Free Replacement Mirror Facets for Concentrating Solar Power

Arvada, Colorado, September 16, 2009:

ReflecTech, Inc. is developing lower cost, glass-free replacement mirror facets for use in utility-scale concentrating solar power (CSP) plants with funds from a Small Business Innovation Research (SBIR) grant awarded by the Department of Energy (DOE). The parabolic-shaped glass mirrors that have been traditionally used in most CSP plants to collect and concentrate solar radiation are expensive, heavy, and fragile; routinely fracturing or shattering in the desert winds. When glass reflectors break, fragments often strike and damage the expensive glass-encased thermal receivers, further compounding the problem and raising the cost of repair. The ReflecTech replacement mirror panels will use ReflecTech[®] Mirror Film: a silvered polymer film developed through DOE-supported research, exclusively licensed to ReflecTech, Inc., and the only mirror film proven for outdoor use in solar concentrators. The ReflecTech replacement mirrors will be shatterproof and will match or exceed the optical and structural characteristics of glass mirrors at a lower cost, with proven durability.

The SBIR grant program has a stated goal to “increase private sector commercialization of technology developed through DOE-supported research and development (R&D), stimulate technological innovation in the private sector, and improve the return on investment from Federally-funded research for economic and social benefits to the nation.” Development of ReflecTech[®] replacement facets will achieve significant capital cost reductions for CSP systems and enable increased market penetration.

While the durability of previously introduced mirror film products has been questionable, ReflecTech has gone to great lengths to engineer their product to successfully overcome these challenges. Mirror panels with ReflecTech[®] Mirror Film installed more than six years ago at Solar Energy Generating Station (SEGS) VI in the Mojave Desert are tested yearly, and have maintained their high reflectivity (showing no signs of delamination or tunneling – problems identified with mirror films of the past. Furthermore, accelerated testing of the film at the National Renewable Energy Lab (NREL) and Arizona Desert Testing, LLC (AZTEST) shows no mechanical failures and no decrease in the reflectance of the film, even after the equivalent of 10 years of exposure.

The novel reflectors from ReflecTech will be lightweight and unbreakable - making them easier to manufacture and install. The resulting reduction in cost of energy delivered will help to accelerate CSP’s emergence into energy markets and accelerate the shift away from fossil fuels. Furthermore, whereas all of the world’s utility-scale CSP systems built so far use glass mirrors from a single supplier, the ReflecTech facets will offer an alternative with considerably fewer supply constraints due to the high volume production capabilities of ReflecTech[®] Mirror Film.

“Glass mirrors are the Achilles’ Heel of solar concentrators. It was evident 20 years ago when the SEGS plants were built, so we set out on a path to engineer a reflective film that would be cost effective, lightweight, and unbreakable – everything glass mirrors are not,” said Randy Gee, ReflecTech’s Chief Technology Officer. “Today, we sell the film. When we finish this project, we’ll be selling the reflectors.”

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ReflecTech, Inc. markets ReflecTech[®] Mirror Film which is used primarily to reflect sunlight onto the receivers of Concentrating Solar Power (CSP) collector systems such as parabolic troughs, parabolic dishes, and central receiver heliostats. ReflecTech[®] Mirror Film also has applications in concentrating photovoltaic (CPV) systems, and other emerging CSP technologies such as linear Fresnel reflectors. ReflecTech[®] is the only high-reflectance mirror film proven for outdoor applications. ReflecTech[®] Mirror Film was developed in partnership with the National Renewable Energy Laboratory (NREL) in Golden, CO.

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