
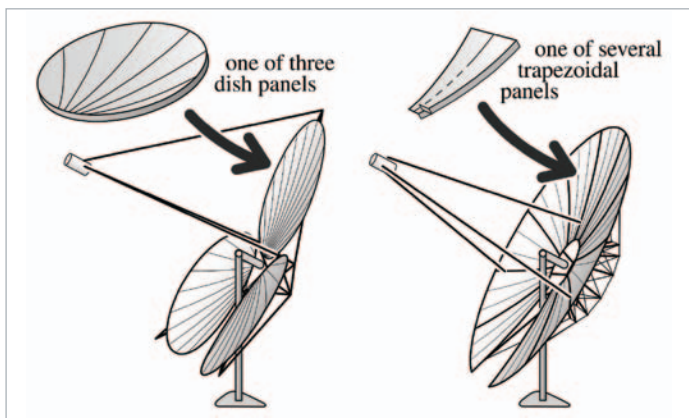


Low-Cost, Lightweight Solar Concentrator

JET PROPULSION LABORATORY 	
PROGRAM:	SunShot CSP R&D 2012
TOPIC:	Advanced Collectors
LOCATION:	Pasadena, California
AWARD AMOUNT:	Up to \$2.3 million
PROJECT TERM:	2012–2015



The JPL/L'Garde lightweight concentrator facets can be easily manufactured, installed, and replaced. In addition, the facets can be deployed for different configurations.
Illustration from Jet Propulsion Laboratory

CONTACTS

Project Leader:
Dr. Gani Ganapathi
gani.b.ganapathi@jpl.nasa.gov

Partnering Organization:
• L'Garde

MOTIVATION

Solar concentrators currently cost \$150–\$250/m², which represents as much as half of the total installed cost for a concentrating solar power (CSP) plant. To reduce concentrator costs enough to achieve the SunShot Initiative's target installed solar field cost of \$75/m², the entire system—from the reflector surface and the mirror support structure to installation and maintenance—must be optimized.

PROJECT DESCRIPTION

NASA's Jet Propulsion Laboratory (JPL) and L'Garde are working together to develop a solar collector structure using lightweight materials that cost less and are easier to install. This design places an emphasis on mass-manufacturability. Specific objectives include designing and developing:

- A durable thin-film mirror using an inexpensive film with high reflectivity
- A rigid-foam mirror support structure achieving weight reductions of more than 50% and cost reductions of 40%
- A mirror module containing several facets and/or gores to facilitate transportation, installation, maintenance, and repair
- Low-cost drive components and an associated control system.

IMPACT

The ease of manufacturability, installation, and replacement make JPL's proposed technology a compelling one to develop. In addition, the solar thermal collector structure could be easily modified for multiple types of CSP applications.

For more information, visit the project page at: www.solar.energy.gov/sunshot/csp_sunshotrnd_jpl.html.