
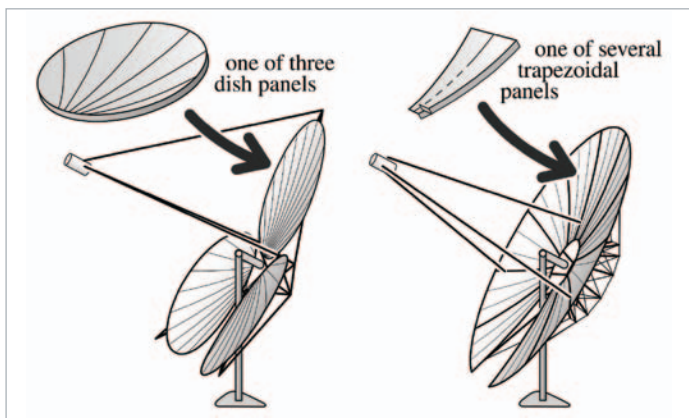


# Low-Cost, Lightweight Solar Concentrator

<b>JET PROPULSION LABORATORY</b> 	
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

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**Partnering Organization:**  
• L'Garde

## MOTIVATION

Solar concentrators currently cost \$150–\$250/m<sup>2</sup>, 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/m<sup>2</sup>, 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](http://www.solar.energy.gov/sunshot/csp_sunshotrnd_jpl.html).