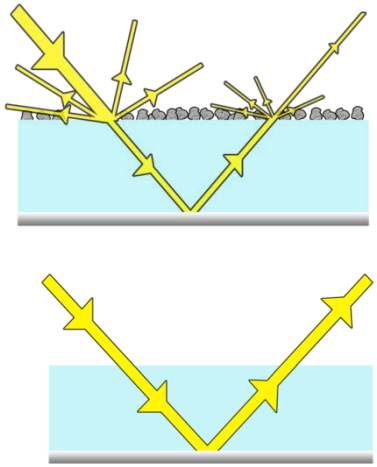
SELF-CLEANING CSP OPTICS WITH EDS

Boston University

Award Number: DE-EE0005794 | MAY 15, 2013 | Mazumder

PROJECT OBJECTIVES

Collaborative project of Boston University, Abengoa Solar and Sandia National Lab for developing Electrodynamic Screen (EDS) based self-cleaning CSP, CPV and Heliostat Optics.

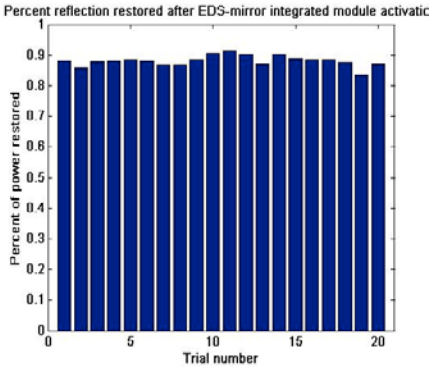


APPROACH

- Fundamental Studies on Electrodynamic Dust Removal process
- Analysis of Dust Deposition, Adhesion and Removal Mechanisms
- 10 EDS-integrated Mirrors were developed and tested for Self-cleaning Properties
- Cost-ModeL developed in collaboration with Abengoa Solar. Analysis shows economic benefit- payback in 2 yrs.

KEY RESULTS AND OUTCOMES

EDS-integrated solar mirror was developed and tested within an Environmental chamber. Close to 90% Percent Reflectivity restored by activating EDS for removing dust from a solar mirror. Electrodes with high transparency will improve efficiency.



NEXT MILESTONES

- **Completion of lab testing of 20 Prototype EDS under simulated desert atmospheres**
- **Prepare 15 prototype EDS integrated Glass Mirrors**
- **Perform Field Evaluation of EDS-mirrors at Abengoa Solar Facility and at SNL**
- **Carryout detailed cost-benefit analysis with Abengoa Solar including installation, operation and maintenance**