

DOE's National Solar Thermal Test Facility Operations and Maintenance

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Award Number SunLaMP SNL-1511

CONCENTRATING SOLAR POWER

BACKGROUND:

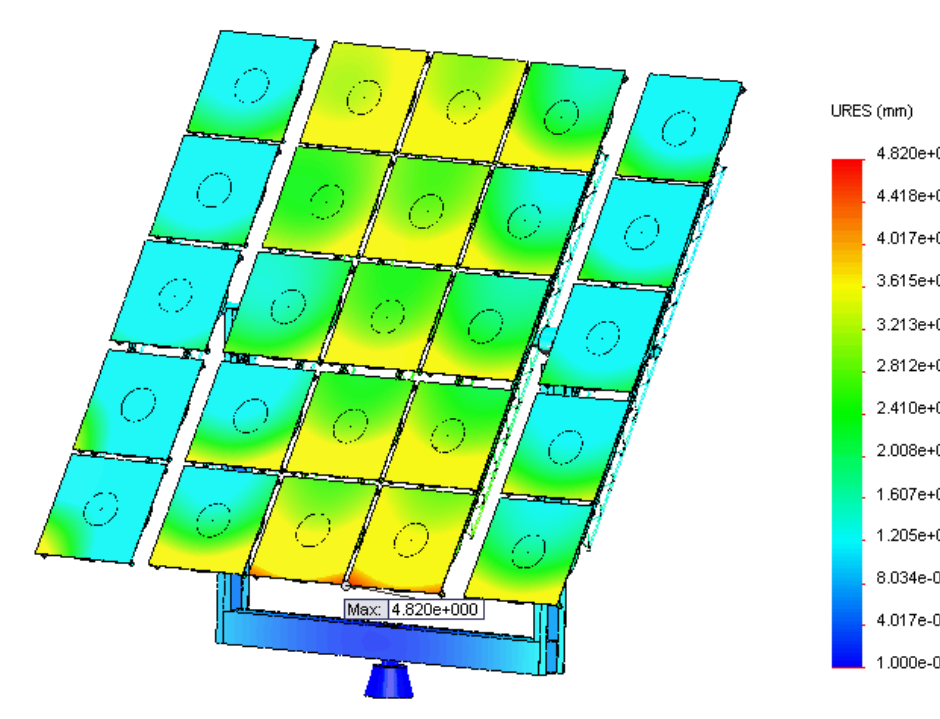
The DOE's National Solar Thermal Test Facility at Sandia National Laboratories supports vital research and development of CSP and PV technologies. The NSTTF provides state-of-the-art test platforms and highly experienced and world-renowned researchers and technologists.

VISION:

- Collaborate on the development of next-generation CSP technologies to provide dispatchable, clean, solar-thermal electricity at higher conversion efficiencies.
- Develop technologies to realize significant reduction in Levelized Cost of Energy (LCOE) by making fundamental advances in power cycles, collectors, receivers, and thermal storage to achieve the intent of the SunShot goals.

OBJECTIVES:

- Leverage the NSTTF for development, testing, and application of new CSP technologies that are instrumental in advancing the state of the art in support of SunShot goals.
- Market the NSTTF's broad experience base, testing capabilities, and unique tools to industry, DoD, and others to help further the development of CSP and national security related technologies.



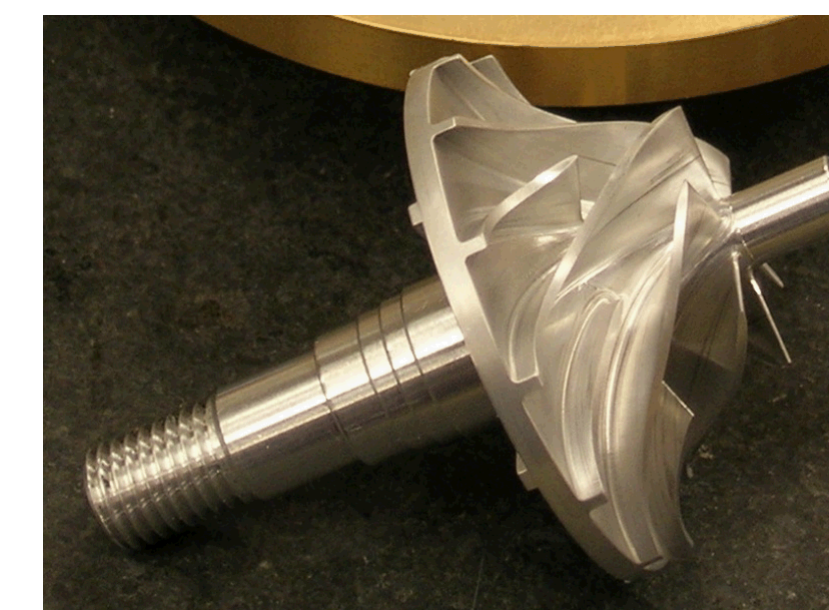
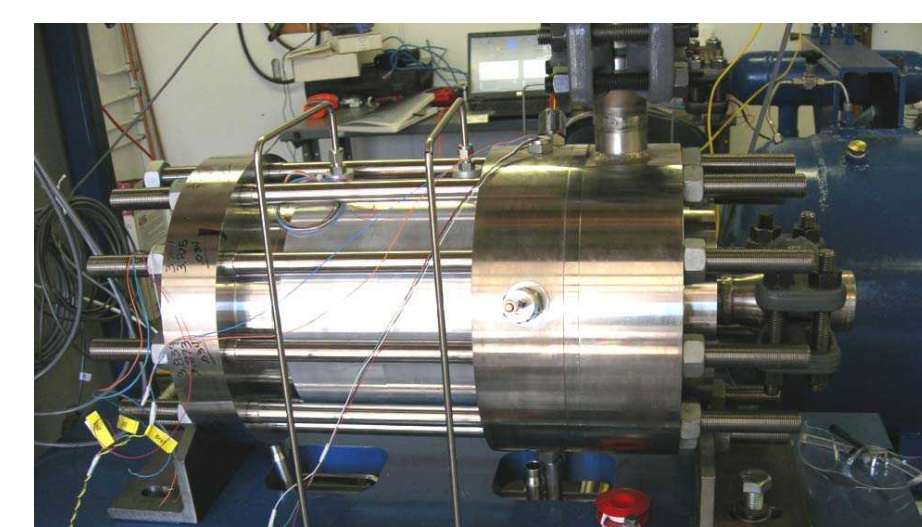
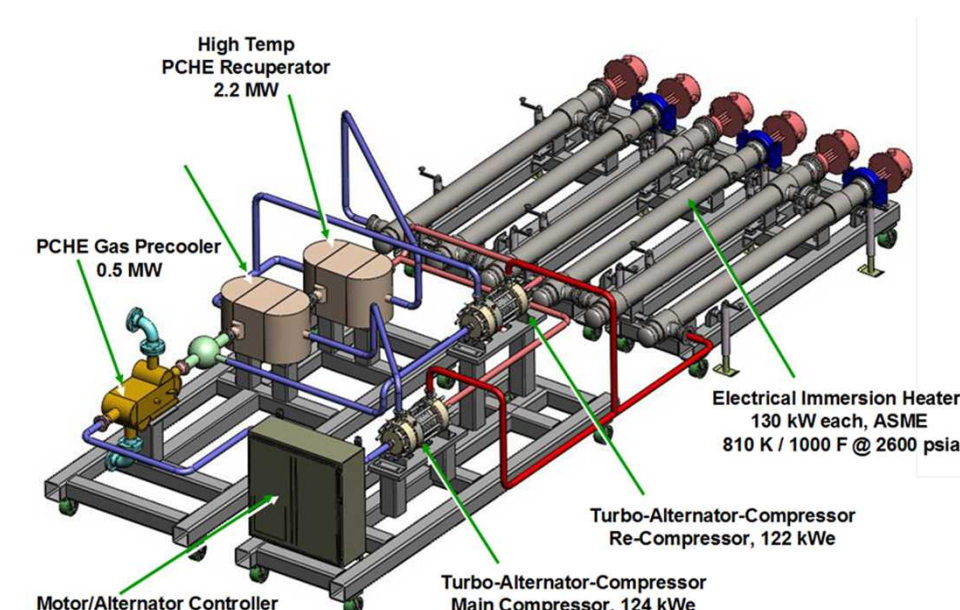
Full-scale heliostat testing at the NSTTF enables validation of models and design tools

RESULTS:

Sandia has partnered with key solar companies and universities in the development and testing of innovative technologies for industries from solar thermal and solar fuels to defense and space exploration.



DOE's National Solar Thermal Test Facility provides a large-scale test environment for CSP technologies



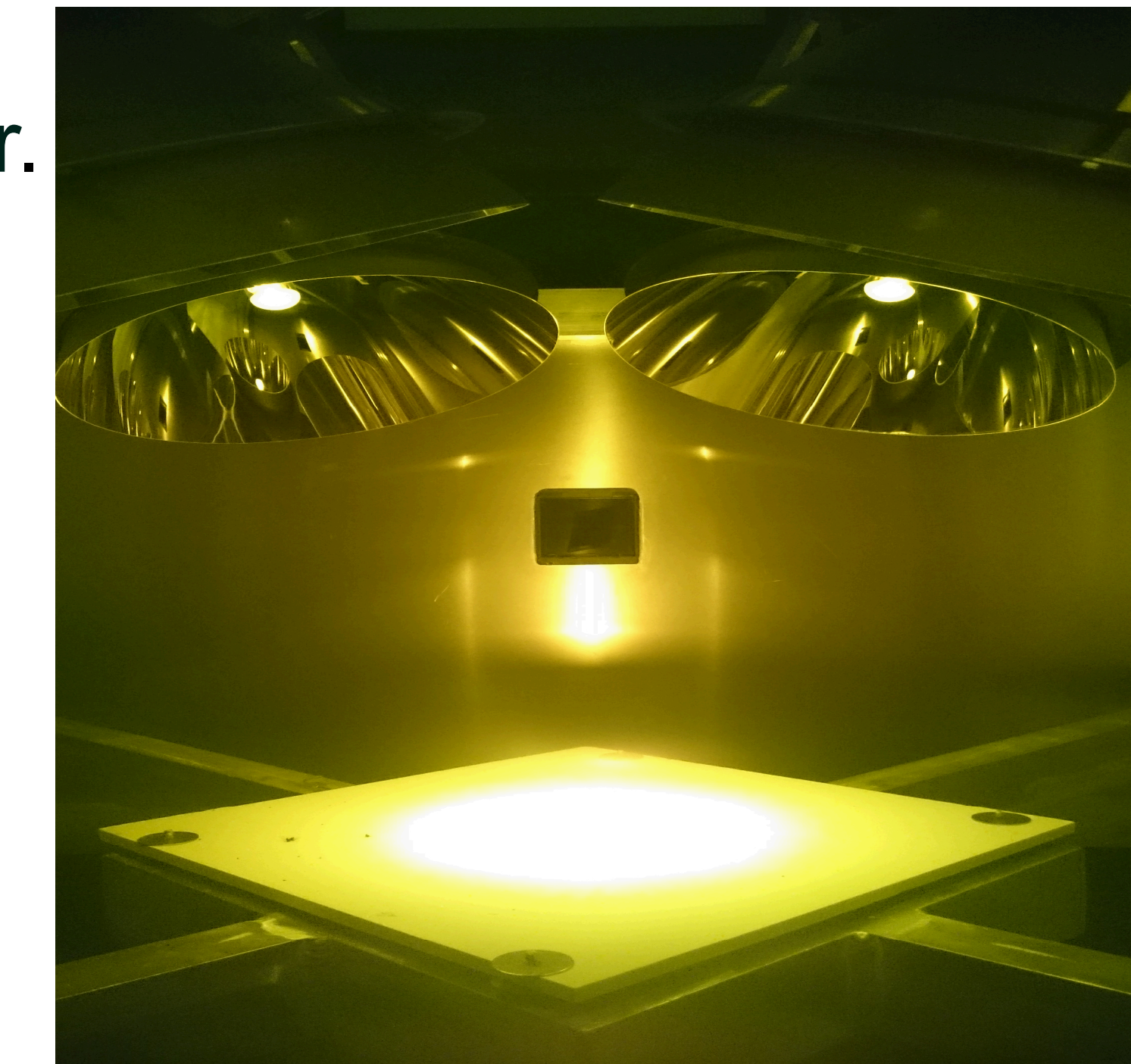
Supercritical CO₂ flow loop at Sandia is being developed for advanced thermodynamic cycles

KEY PARTNERS:

Industry	Government	Academia
Agira	DOE	Arizona State Univ.
NRG	DOD	Boston University
SolarReserve	DLR	Georgia Inst. Tech.
Skysun	FAA	U of C -San Diego
	NASA	Univ. of Arizona
	NREL	King Saud Univ.
		Australia Nat. Univ.

RECENT INVESTMENTS:

- 7.2 kW_e Solar Simulator.
- Peak :1.1 MW/m²
- Average: 0.9 MW/m²
- Spot size: 2.54 cm
- Robotic sample holder
- 24/7 Testing



High-Flux Solar Simulator with Automated Sample Handling & Exposure System (ASHES)

RECENT WFO ACTIVITIES:



Accelerated film temperature testing of Molten Salt

How Can We Support Your Testing Needs?



SolarReserve heliostat wind load testing at the NSTTF using strain gages and accelerometers

REFERENCES & RESOURCES

[1] Please Visit csp.sandia.gov to obtain a complete listing of SAND reports and Journal Articles that are directly related to the R&D activities at the NSTTF.