

# Solar Energy Research at NREL

Golden, Colorado



Since 1977, NREL's solar research and development has made significant contributions to solving the nation's energy challenges through innovations that have transitioned the concept of solar energy to the real world applications seen today. Focus research areas are in the areas of photovoltaic, solar thermal research, and solar radiation.

Our research expertise is unmatched in concentrating solar power technologies, solar thermal and parabolic trough technologies, advanced optical materials, photovoltaics, advanced thermal storage materials, and heat transfer fluids. Our photovoltaic integration laboratory – available to the private sector – is the world's largest modular system for photovoltaic research and development.

**Partner with us.**

[www.nrel.gov/solar](http://www.nrel.gov/solar)

## Research Focus Areas

- Photovoltaic (PV) systems
- Concentrating Solar Power (CSP) systems
- Solar thermal systems
- Advanced components and technologies for PV, CSP, and solar hydrogen
- Systems-driven modeling and analysis
- Optical analysis and modeling
- Advanced coatings modeling and analysis
- Computational fluid dynamics
- Solar technology market penetration analysis

## Test Facilities

- Process Development and Integration Laboratory
- Solar Test Facility
- High Flux Solar Furnace
- Advanced Optical Materials Laboratory CSP HCE Test Laboratory
- Optical Testing Laboratory and Beam Characterization System
- Large Payload Solar Tracker with Thermal Test Loop
- Advanced Thermal Storage Materials Laboratory



**NREL**  
**National Renewable Energy Laboratory**

*Innovation for Our Energy Future*

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