

Reliable Renewable Energy for a New Electric Infrastructure



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PV Systems Integrator
Workshop
San Jose, CA



Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the United States Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.



Our Business: National Security

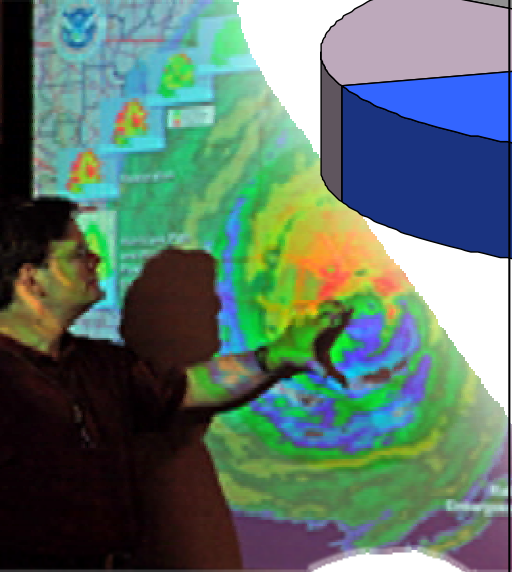
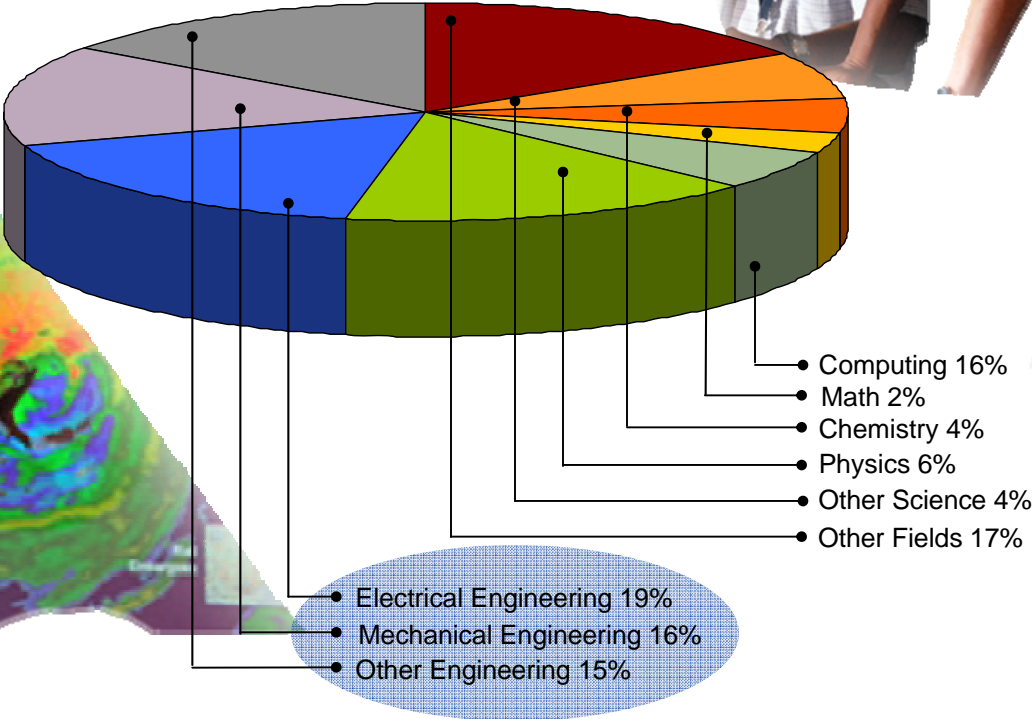
- **Core purpose**
 - to help our nation secure a peaceful and free world through technology
- **Highest goal**
 - to become the laboratory that the United States turns to first for technology solutions to the most challenging problems that threaten peace and freedom for our nation and the globe



Sandia's People

- On-site workforce: 11,200
- FY08 permanent workforce: 8,400
- FY08 gross payroll: \$886.1M
- FY08 budget: \$2.3B

Technical Staff (3,844) by Degree
(End of FY08)





Sandia State-of-the-Art Facilities

Microelectronic, Materials, and Nanotechnology

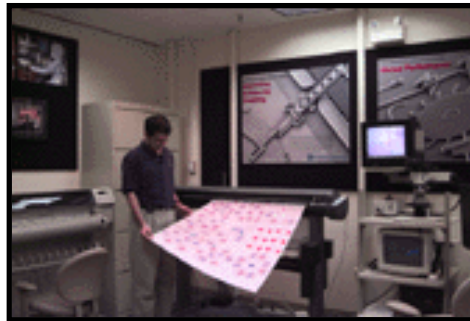


Microelectronics and Semiconductor Materials Processing



Microelectronics Development Lab (MDL)

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Microsystems & Engineering Science Applications (MESA)

Materials Sciences and Nanotechnology Technology

Center for Integrated Nanotechnology (CINT)



Integrated Materials Research Lab (IMRL)

Process & Environmental Technology Laboratory (PETL)





Sandia's Photovoltaic Facilities

PV Systems Evaluation and Optimization Lab



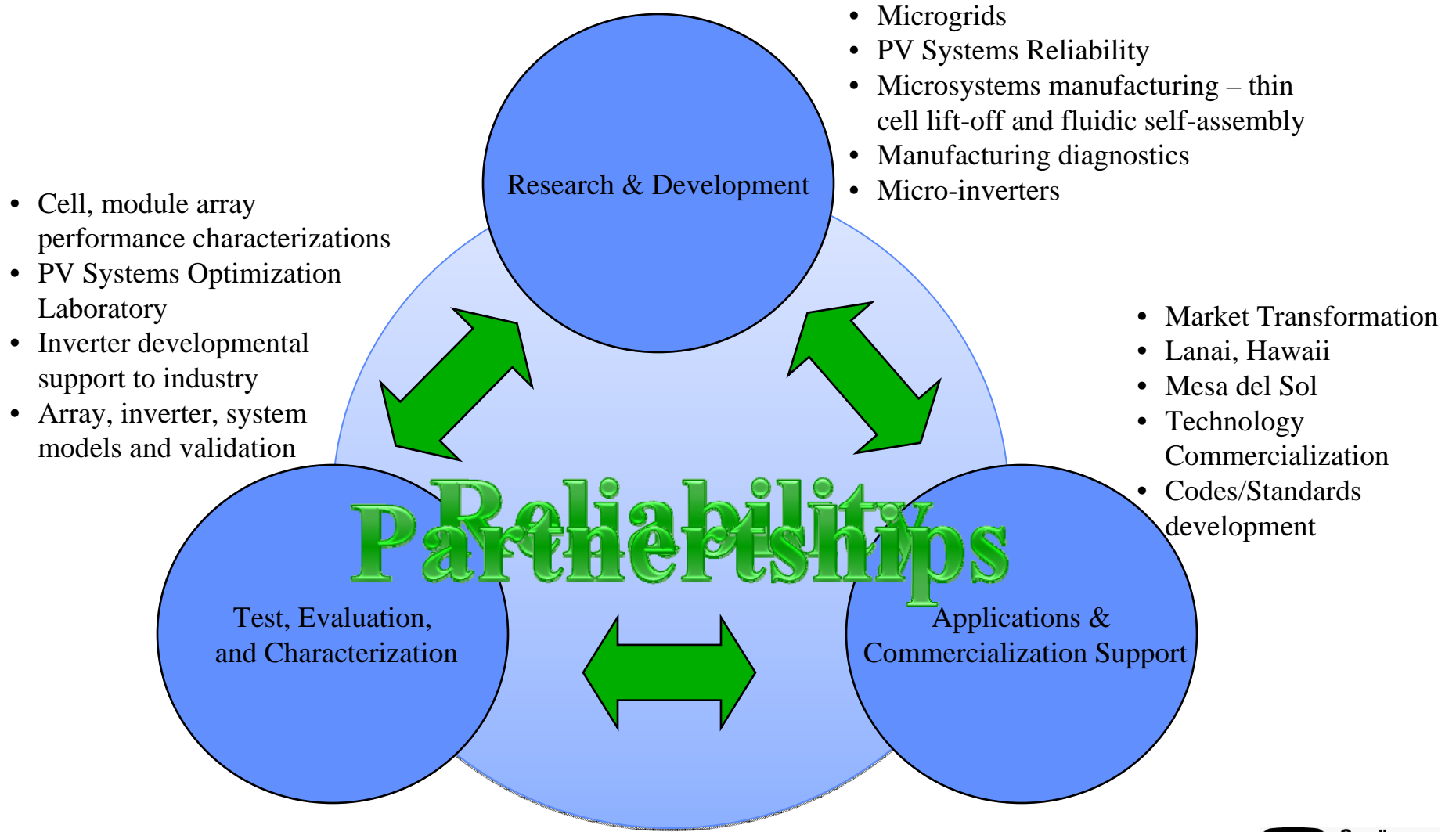
Distributed Energy Technology Lab



- **Controlled Side-by-Side Component, Array and System Characterization**
- **Direct linkages to fielded system monitoring & analysis**
- **Comprehensive Data Acquisition Systems**
- **Grid Integration, Inverters, Combiners, Disconnects- All Reconfigurable**

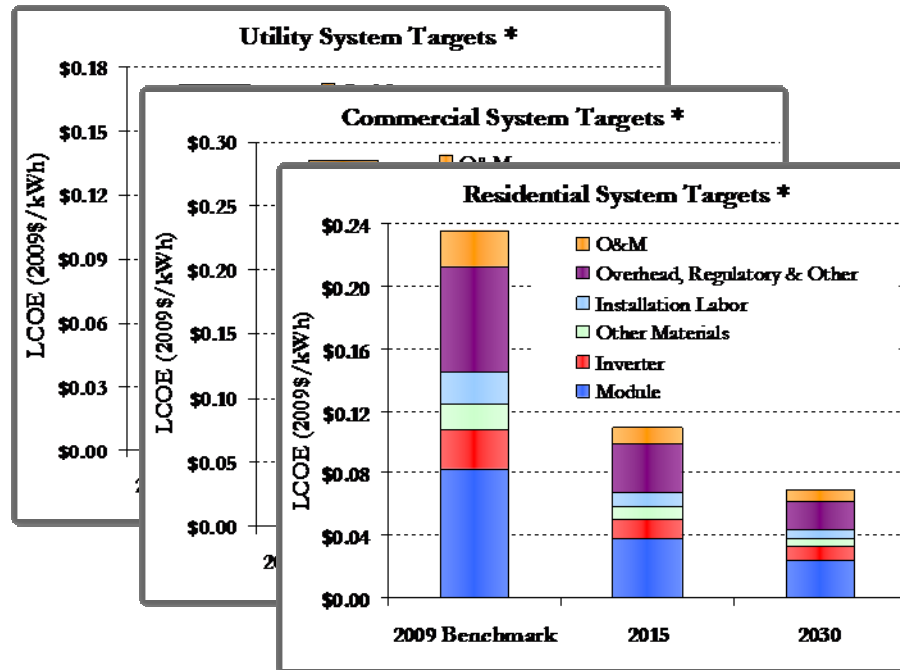


Sandia's PV Program Vision: Recognition as a world-class facility to develop and integrate new photovoltaic components, systems, and architectures for the future of our electric/energy delivery systems

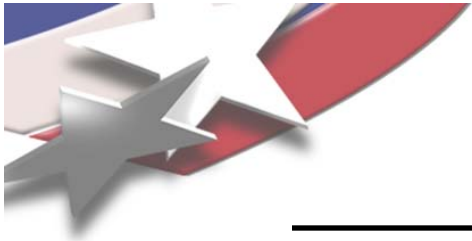




The Value of This Workshop



- **Unreliability has its costs**
 - O&M
 - Lost market opportunities
- **Integrators are a crucial aspect of the technical information chain**
 - Access to systems data
 - Insights on real R&D needs
- **We want to be sure to utilize these system-level insights in our overall reliability framework**
- **We want to address broad issues while you apply new tools to your own business practices**



A Few Considerations

- **Think Broadly:** This workshop is about methodologies, tools, techniques, models, training, codes and standards, etc., that can improve reliability of systems while reducing costs
- **Participate:** We've intentionally scaled back on presentation time to allow more time for interaction.
- **Typical Ground Rules Apply...** (one conversation at a time, take cell phones outside, stay awake, etc.)