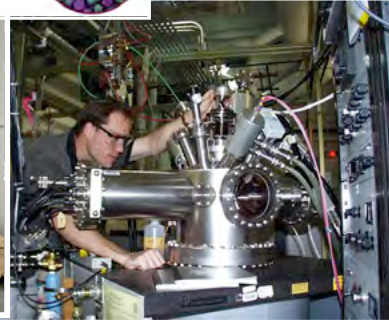


# Science Foundation Arizona (SFAz)



**Innovation at Work**

[www.sfaz.org](http://www.sfaz.org)

## Purpose



### **Science Foundation Arizona**

is

Diversifying Arizona's Economy

by

Helping create an Environment for Innovation

to

- ◆ Expand Jobs and Incomes
- ◆ Attract and Retain World-Class Talent
- ◆ Sustain Prosperity
- ◆ Compete in a Global Economy

# Organization



- ◆ Public-Private Partnership
- ◆ State Five-Year Commitment (\$135 M)
  - ◆ Legislature's Strategic Investment in Making Arizona's 21st Century Economy Diversified and Prosperous
- ◆ Every State Dollar has a Private Sector, 1:1 Match
- ◆ 100% of Core Operating Costs Paid by CEO Groups for 5 years
  - ◆ Flagstaff 40 (including City of Flagstaff), Greater Phoenix Leadership, Southern Arizona Leadership Council
- ◆ Additional Funds Leveraged through Individual Grants: Cost Sharing from Industry Partners

# Board of Directors

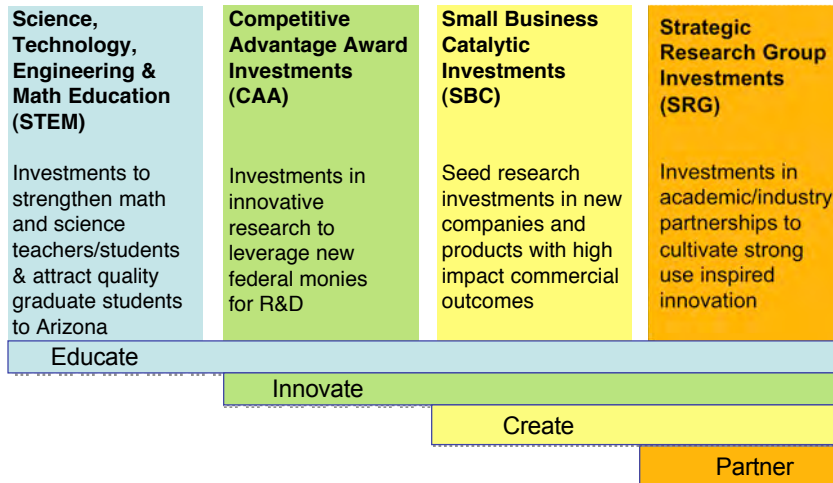


- ◆ **Donald Budinger**, Chairman, Boards of Directors, Science Foundation Arizona, the Rodel Foundations, and the Arizona College Scholarship Foundation
- ◆ **William Harris**, President and CEO, Science Foundation Arizona
- ◆ **Craig Barrett**, Science Foundation Arizona, Board Vice Chair; Chairman of the Board, Intel Corporation
- ◆ **Erich Bloch**, Director, The Washington Advisory Group
- ◆ **Leroy Hood**, President, Co-Founder of Institute for Systems Biology
- ◆ **Anita Jones**, Professor, University of Virginia
- ◆ **Ira Levin**, Senior Deputy Director, National Institutes of Health
- ◆ **Frank McCabe**, Vice President and General Manager, Intel Ireland, Retired
- ◆ **Robert Millis**, Director, Arizona Lowell Observatory
- ◆ **Rick Myers**, Senior Vice President, IBM, Retired
- ◆ **Gary Jones**, Chairman of the Boards, ARKeX and Ingrain
- ◆ **Martina Newell-McGloughlin**, Director, Biotechnology Research, University of California at Davis

## Strategic Investment Grant Programs



### Diversify Arizona Economy



## Peer Review Process



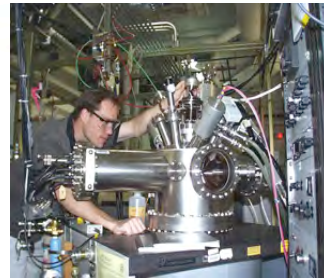
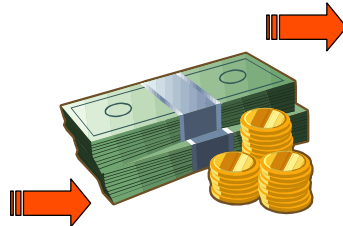
Investments undergo peer review modeled after the National Science Foundation process developed over 50 years ago.



SFAz has enlisted over 250 national and international independent reviewers

Postal reviews, panels in Phoenix, site visits

# 2007 Accomplishments



**58 Innovation Investments totaling \$33.6 M**

- Biosciences
- Sustainable Systems
- Information & Communications Tech.

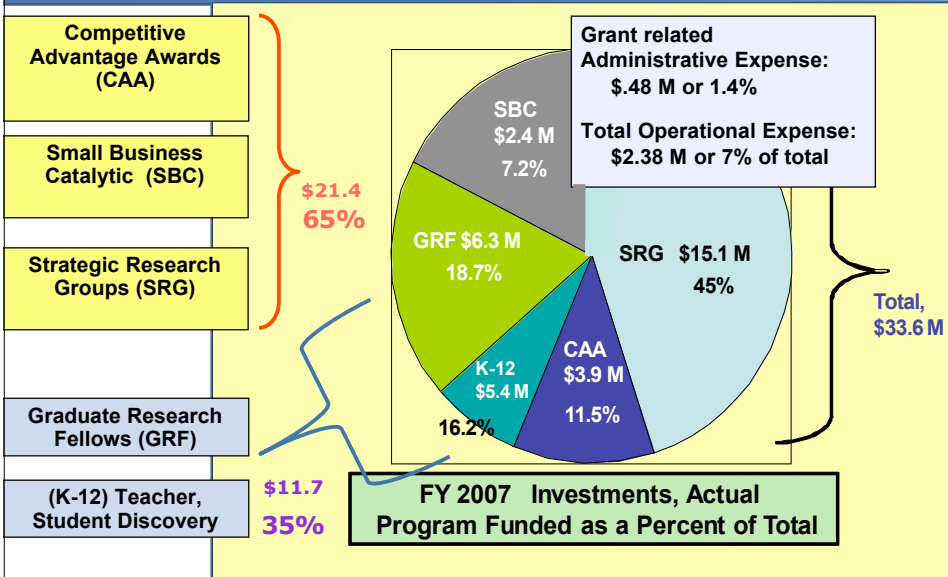
**Attracted additional \$43.8 M including \$15 M in Federal Research dollars**

1:1 private/public dollar match

**Seeded Development of 8 New Companies**

Engaged over 10,800 students and 200 educational institutions

# FY 2007 Investment Grant Programs Total \$33.6 M



# Solar Energy: A Priority



- Growing belief that over the next twenty years solar and other clean energy resources will become a significant player in completely reordering the world's energy infrastructure.
- Arizona and its solar resource offers a natural competitive advantage and an opportunity for global leadership.

Arizona Solar Technology Institute

## Arizona Solar Technology Institute (ASTI) to address priority



Science Foundation Arizona

Arizona Solar Technology Institute

CO-DIRECTORS: RICHARD POWELL & BUD ANNON

Engineer/Science Leaders: Yong Hang Zhang, Roger Angel

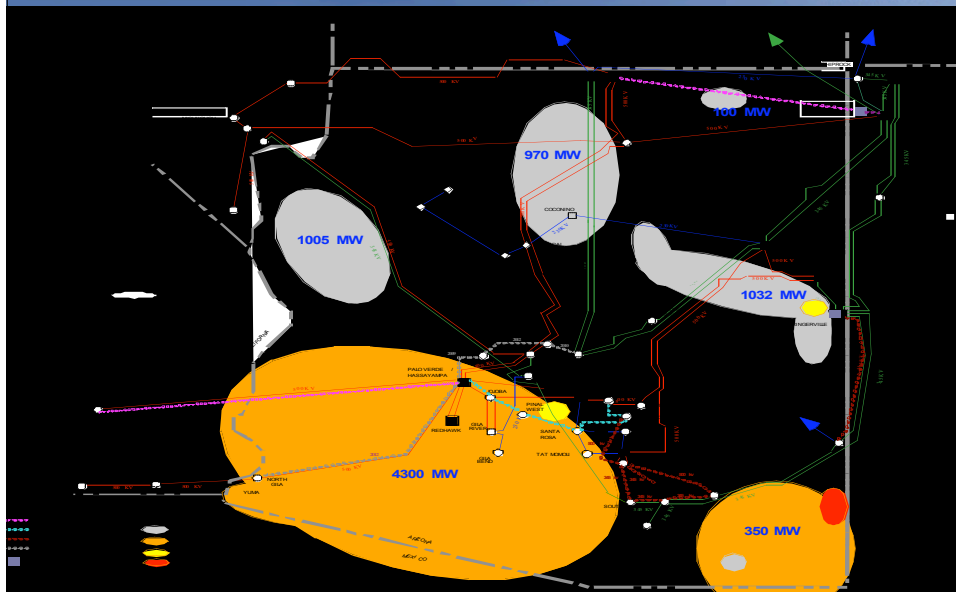
**ASTI'S GOAL: TO REMOVE TECHNOLOGY BARRIERS SO ARIZONA IS THE LEADING STATE IN SOLAR ENERGY**

**VISION: "Arizona can ensure it has enough reliable power to keep up with its growth and become a world leader in solar energy production."**

**Governor Janet Napolitano July 11, 2004**

Arizona Solar Technology Institute

4650MW's Solar Resource Output is  
3X the Output of Hoover Dam

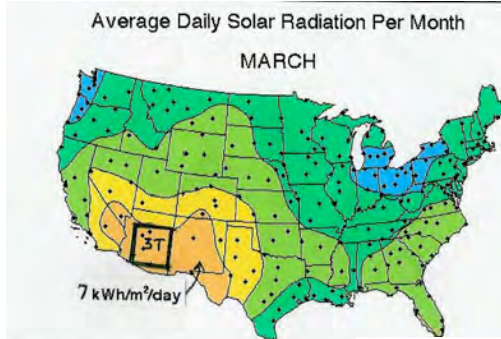


## Arizona Solar Technology Institute (ASTI)



### ARIZONA DESERT IS IDEAL FOR SOLAR ENERGY

- ENERGY EXPORTER & CRITICAL PLAYER IN THE NATIONAL SOLAR ENERGY ROADMAP
- STIMULATE NEW & EXISTING SOLAR ENERGY INDUSTRIES



\*DATA FROM NREL

Two-Axis Tracking Concentrator

Arizona Solar Technology Institute

## ACTIVITIES

1. Establish University/Industry Partnerships for New Technology Development
  - Build on Existing Strengths
  - Problems with Significant Impact
  - Demand for Commercialization
2. Coordinate with State Government Initiatives in Economic Development.
3. Collaborate with Regional Organizations Developing Solar Energy in the Southwest.
4. Provide Technology Assessment & Analytic Services to Energy Policy Makers.

## POTENTIAL ASTI PROJECTS

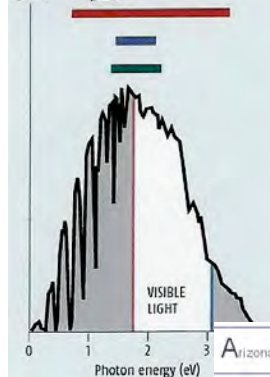
- NEXT GENERATION SOLAR CONCENTRATORS
- MULTIJUNCTION PHOTOVOLTAICS
- COMPRESSED AIR STORAGE
- SOLAR TEST FACILITY
- GRID MANAGEMENT
- NANOSTRUCTURE PV'S



THE SOLAR SPECTRUM

Indium gallium nitride absorbs more of the Sun's energy than today's best alternatives

- Indium gallium nitride
- Gallium aluminium arsenide
- Indium gallium phosphide
- Si



## Research Plan to Guide Investment



- Lowering Costs
  - Emphasize savings at systems level
  
- Improve Performance
  - Novel concepts for higher cell, module and systems efficiencies
  
- Enhance Market Acceptability
  - Scaled projects for grid integration
  - New building integration schemes
  - Solar as a transportation technology
  - Innovative policy decision analysis and models