Catalyzing Innovation in PV Manufacturing

An NSF Workshop

May 6-7th, 2010

Workshop Sponsors

Dr. Greg Rorrer: Program Director, Energy for Sustainability

Dr. Grace Wang: Program Director, SBIR/STTR

Dr. Carol Bessel: Program Director, Chemistry

Dr. Linda Sapochak: Program Director, DMR

Workshop Host

Colorado School of Mines

Renewable Energy Materials Research Science and Engineering Center

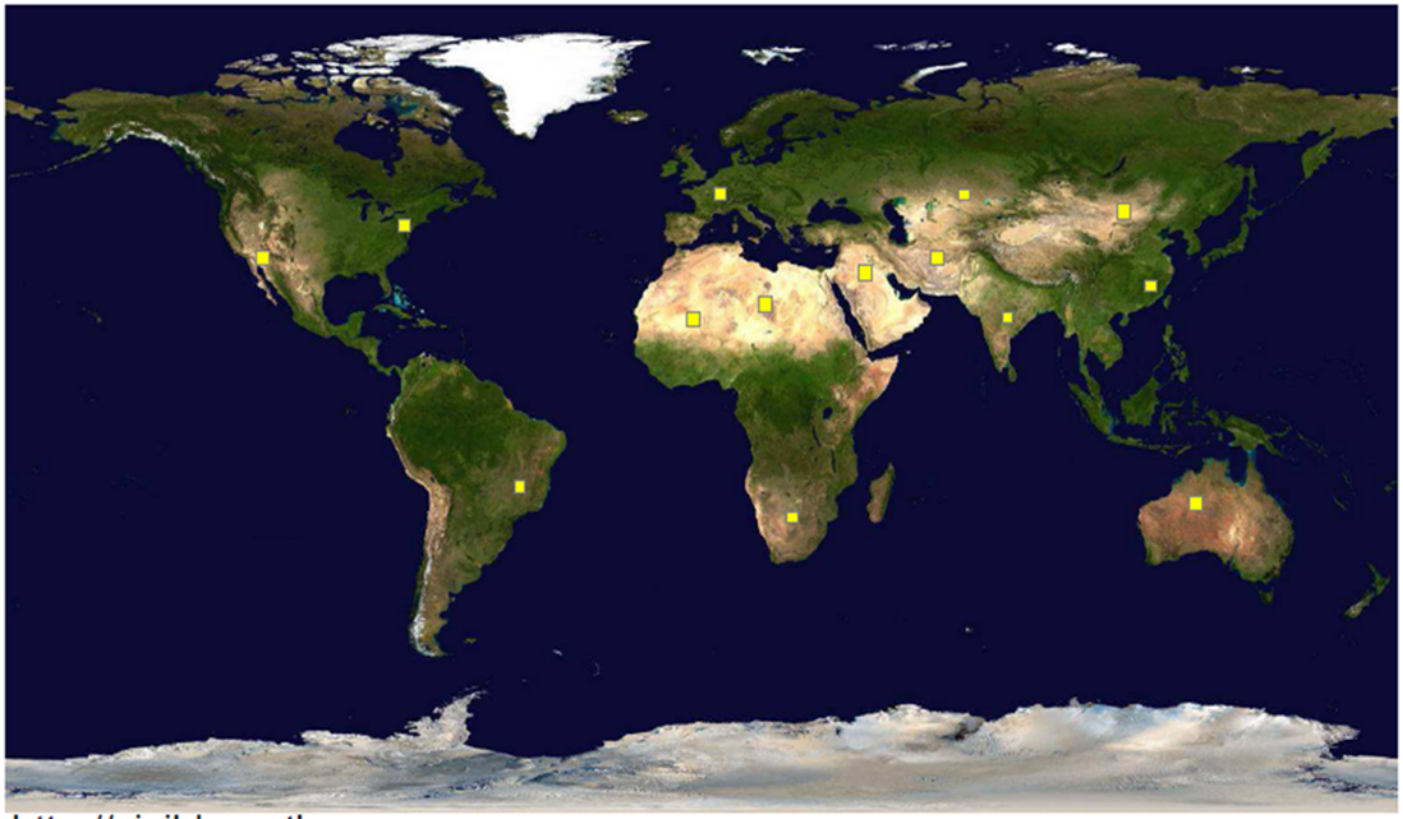
P. Craig Taylor, Director

Workshop Chair: Colin Wolden

Industrial Participants

Academic/National Lab Participants

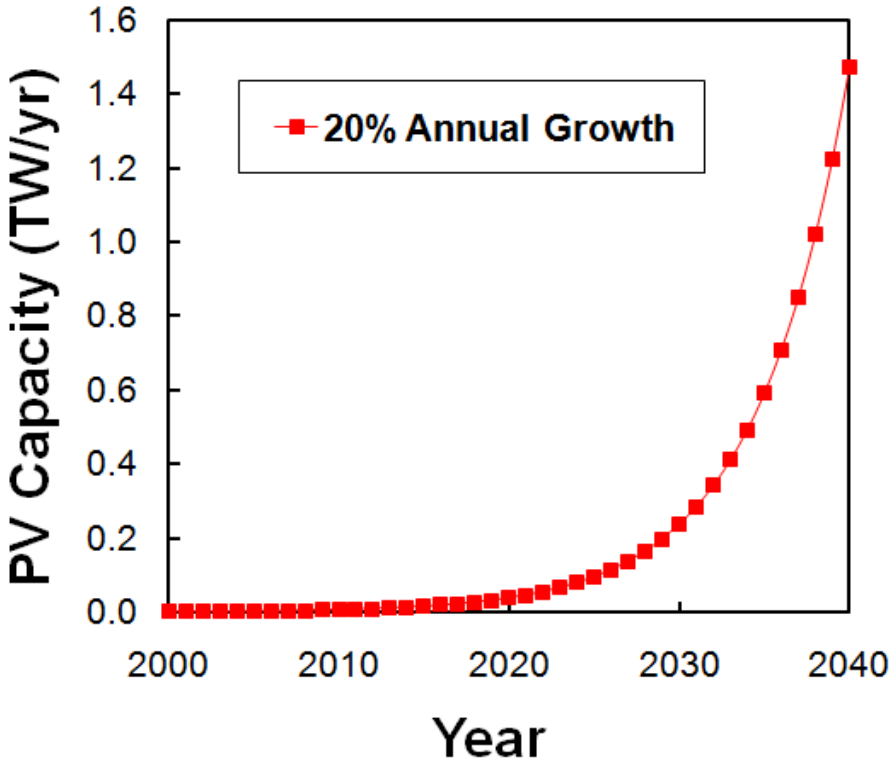
Terawatt Challenge

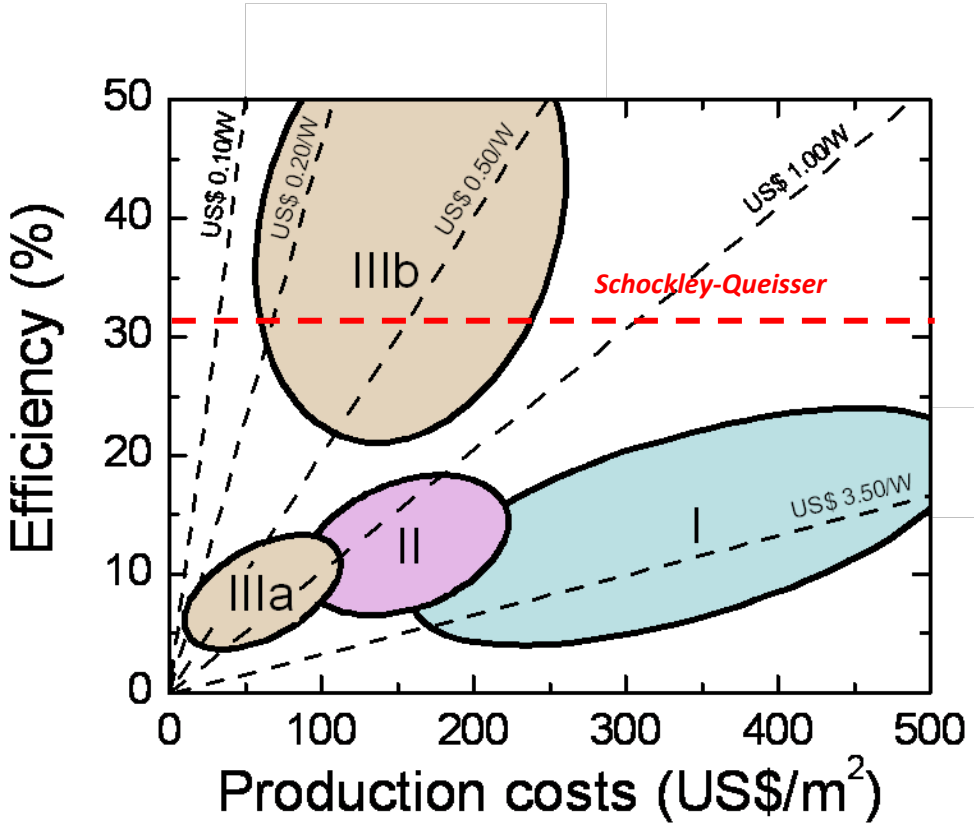


http://visibleearth.nasa.gov

- 30 TW of clean, renewable energy by 2050
- Require 1 TW/year capacity

Growth and Costs





From Green

- Is 20% growth sustainable?
- Key: Further reductions in cost/W_p

Improve Efficiency or Decrease Costs?

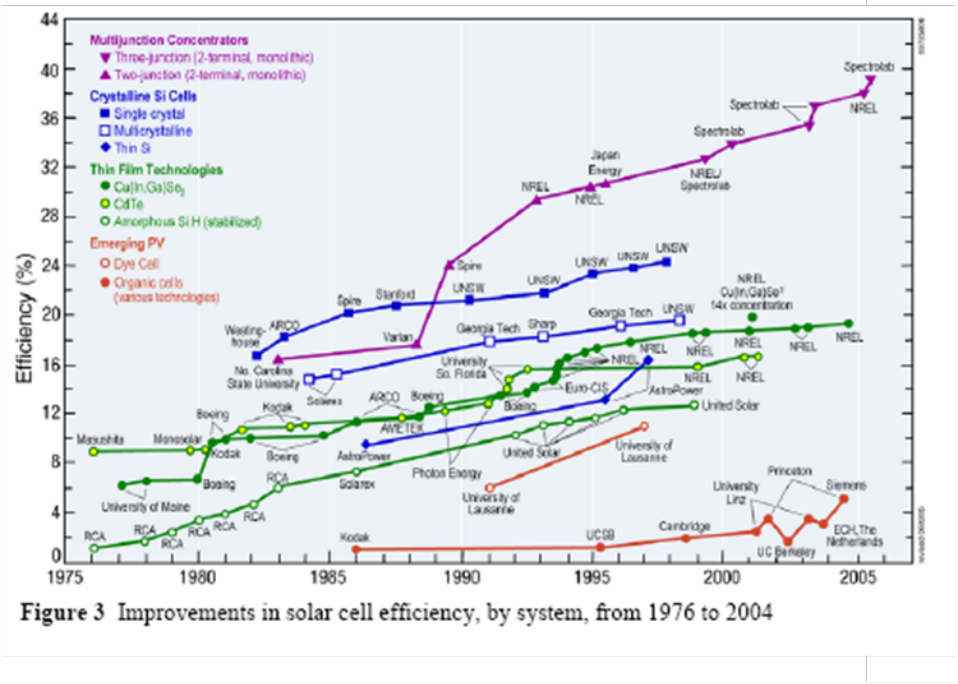
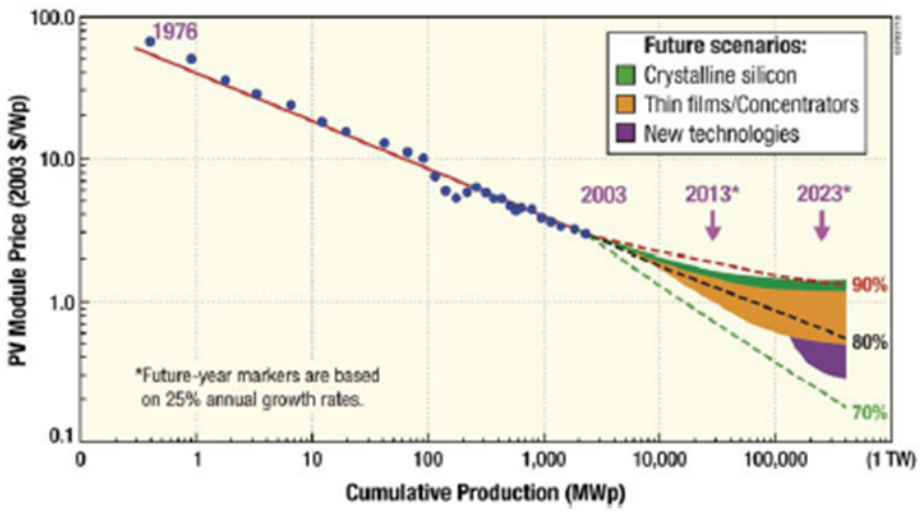


Figure 3 Improvements in solar cell efficiency, by system, from 1976 to 2004



From Surek , 2005

- Efficiency: Gap between modules & record cells
- Costs: Learning Curve 80%
- Require Improvements in Manufacturing

Workshop Goals

Identify the potential technologies and innovations that offer *low-cost, high-conversion-efficiency and sustainable* photovoltaic materials.

Determine Key Technical Challenges

- Topics best addressed by Academia
- Topics best addressed by Industry
- Topics best addressed by Collaboration

Develop Mechanisms to Facilitate Effective Partnerships

Discussion Sessions

I. Inorganic Thin Film PV Technology

II. Organic/Dye-Sensitized PV Technology

III. Catalyzing Partnerships

IV. Scale-up to TW/year Production

Panel: Scientific Workforce Development

- How are we doing?
- What are your current/expected needs?
- Views on disciplinary vs. PV specific training?