



U.S. Department of Energy
Energy Efficiency and Renewable Energy

The President's Solar America Initiative



Technology Acceptance
Solar Energy Technologies Program
U.S. Department of Energy
June 12, 2006



SAI Mission

Achieve cost-competitiveness of solar energy technologies by 2015 across all market sectors.



SAI Technology Acceptance Mission

Reduce market barriers and promote market expansion of solar energy technologies through non-R&D activities.



Infrastructure Development

Provide technical, regulatory, institutional, financial and educational solutions to technology acceptance barriers.

- Required for SAI success.
- No or low recipient cost share.
- Enables solar systems to easily reach end-user.

Market Expansion

Accelerate demand for solar technologies through provision of technical assistance.

- Increases chance of SAI success.
- Leverages technical assistance to promote solar installations.
- Creates benefits from economies of scale and consumer awareness.



Infrastructure Development

Identify barriers to market penetration

Identify methods to minimize or eliminate barriers

Barriers

Methods

Market Expansion

Opportunities

Methods

Identify opportunities for market expansion

Identify methods to capitalize on opportunities

Technology Acceptance Strategic Plan

Technology Acceptance Implementation Plan

Prioritization

Implementation

Prioritize activities & return on investment

Identify tasks, performers, metrics, budgets and timelines



Most frequently identified non-technical barriers to solar energy implementation, listed in order of frequency.

High cost (*addressed by all SAI activities, including R&D effort*)

Lack of trained technical personnel, reliable installers, and maintenance services

Lack of communication, information dissemination, and consumer awareness

Inadequate financing options

Lack of appropriate, consistent interconnection standards

Inadequate government incentives

Lack of equitable and effective net-metering guidelines

Inadequate codes and standards

Liability issues / insurance requirements

Poor public perception of solar system aesthetics



Infrastructure Development

Provide technical, regulatory, institutional, financial and educational solutions to technology acceptance barriers.

1. Promote codes, regulations and standards that accommodate solar electric systems.
2. Promote the education and certification of solar installers and code officials.
3. Develop and promote national rating system for solar systems.
4. Promote improved financing and insurance options for solar electric systems.

Market Expansion

Accelerate demand for new solar technologies through highly cost-shared “market pull” purchase opportunities.

1. Promote large-scale installations of advanced solar power systems.
2. Create and promote “Solar America City” designation.



Barrier/Opportunity Matrix to Activities

ACTIVITIES	BARRIERS / OPPORTUNITIES						
	Misunder- standing of Technologies	Regulatory Barriers	Poor Consumer Confidence	Lack of Trained Installers	Lack of Technical Expertise	Difficult or Costly Transactions	Increased Technology Usage
INFRASTRUCTURE DEVELOPMENT							
Codes & Standards							
Installer/Official Training							
PV Rating System							
Financing & Insurance							
MARKET EXPANSION							
Large-Scale Installations							
Solar America Cities							



Potential SAI Participants

GOVERNMENT

Federal Agencies

Regional Entities

States

City / Local

Tribal

COMMERCIAL

PV Industry

Commercial Users

Industrial Users

Building Community

Finance/Insurance Community

UTILITY

Investor-Owned

Federal

Municipal

Rural Cooperatives

INSTITUTIONAL

Educational Community

Unions

Standard-Development Organizations

Independent Labs

NGOs



Building integration issues are of critical importance across many, if not all, of our infrastructure development issues, and offer great opportunities for market expansion.

- *Codes, standards, and regulations* include building codes as well as metering and connection issues.
- *Education of code officials* involves training professionals who work on analyzing buildings and their components.
- *Education of installers* necessarily involves an understanding of whole building issues, not just solar systems.
- *PV rating systems* must be understood by the building community, as they, and homeowners, are the main audience for such ratings.
- *Financing & insurance* issues involve, e.g., the integration of systems into the home for purposes of financing the system within a conventional mortgage.
- New home communities are among the greatest *market expansion opportunities*.



Utilities play a critical role in the success of infrastructure development issues, and offer great opportunities for market expansion.

- *Codes, standards, and regulations* necessarily involve thorough utility interaction and buy-in.
- *Education of installers and code officials* may be conducted by utilities, especially if utilities become involved with the finance or ownership of solar systems.
- *National PV rating system* would be of great benefit to utilities in net-metering and obviate *some* of the need for more costly performance-based incentives. Utilities must buy in to the rating system to make it effective.
- *Financing & insurance* offers tremendous opportunities for utilities to expand their business models to include novel ways of finding profits through distributed solar.
- Utility-scale solar installations, both PV and CSP, are among the greatest *market expansion opportunities*.



- RFI Release (April 2006)
- Tech Acceptance Strategic Planning Group (April-June)
- Technical Exchange Meetings (San Francisco, Washington) – (June 2006)
- RFI Close (June 2006)
- Issuance of Tech Acceptance Strategic Plan (July 2006)
- FOA Issuance (July 2006)
- FOA Close (September 2006)
- Announcement of Winners (November 2006)
- Awards Completed (January/February 2007)
- Release of Tech Acceptance Implementation Plan (part of SAI Implementation Plan) (February 2007)



- Your verbal comments today will be used to inform our strategic planning process and our solicitation drafting process.
- SENTECH, Inc. is capturing your comments to the greatest extent possible, although their job is to note important points and general discussion trends, not capture every comment by every participant.
- If you wish to provide further comments on any Technology Acceptance topic, please feel free to respond in writing to the Solar America Initiative Technology Acceptance Request for Information (RFI).
- A link to the RFI is provided on this website:
<http://www.sentech.org/SolarTATEM2006/>