



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

The President's Solar America Initiative



System Finance and Insurance

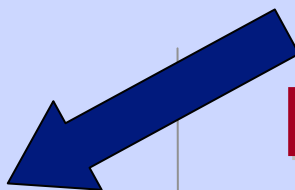
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U.S. Department of Energy
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- Your verbal comments today will be used to inform our strategic planning process and our solicitation drafting process.
- SENTECH, Inc. is capturing your comments to the 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). **COMMENT PERIOD CLOSES JUNE 30, 2006.**
- A link to the RFI is provided on this website:
<http://www.sentech.org/SolarTATEM2006/>



Infrastructure Development



Market Expansion

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.

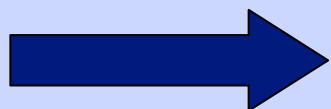
Accelerate demand for solar technologies through provision of technical assistance.

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



Infrastructure Development

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.



Potential DOE Partners: INFRASTRUCTURE DEVELOPMENT

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



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

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

Lack of trained technical personnel, lack of reliable installation and maintenance services

Lack of communication, information dissemination, and consumer awareness

Inadequate financing options

Lack of appropriate, consistent interconnection standards

Inadequate government incentives (*not covered in this session*)

Lack of equitable and effective net-metering guidelines

Inadequate codes and standards

Liability issues / insurance requirements

Poor public perception of solar system aesthetics



BARRIERS:

- 1. Lack of understanding/knowledge/awareness of financing and insurance options for PV systems, especially by builders and end users.**
- 2. Lack of creative, new financial and insurance vehicles for solar technology purchases.**

OBJECTIVE: Promote better understanding of existing financing and insurance options, as well as promote new options, for solar electric systems.



RESULT: More financed solar installations installed.



- **This topic does not address:**
 - Policy decisions, such as the promotion of Federal, State or municipal clean energy funds, tax incentives, or renewable portfolio standards (RPS's) to support solar.
 - Venture capital investment into solar technologies and how to leverage funding by PV manufacturers – our focus is on the financing and insurance requirements of system installations.
 - The financing of large public sector projects (e.g., through bonds, certificates of participation, lease-purchase, etc).



- **Lack of understanding/knowledge/awareness of financing and insurance options for PV systems, especially by builders and end users.**
 - First cost is a huge barrier to solar installations.
 - Yet, a variety of options already exist, often offered by utilities, that may lower this barrier, such as leasebacks, energy performance contracts and shared savings vehicles, time of use, credits, rebates, zero-interest loans, taxes, and aggregation.
- **Lack of adequate financial and insurance vehicles to enable solar purchases.**
 - Public, private and utility “best practice” financing mechanisms are in scattered use across the US.
 - There is potential for new mechanisms and models to be developed that accurately portray risks of solar.



Location: Philadelphia, PA (2001)

Builder: Bradley Builders (Don Bradley, builder of the Solar Patriot, the precursor to the Solar Decathlon)

Project Scope: 18 townhouse units

Price: \$60,000 to \$65,000 (low-income)

Team: Department of Energy (DOE), the PA State Office of Housing and Community Development, Resources for Human Development (a non-profit developer), Crusaders Development Corporation (a non-profit community group), and Bradley Builders and Developers.

Financing: Obtained by a city-initiated development team, including federal, state, and city agencies, local non-profits, and a for-profit builder. Innovative solar financing program, DOE grant, HUD grant.

Innovations: Modular housing, Precast Foundations Panels, Solar Water Heating, Rooftop Photovoltaic Panels, energy monitoring, low-interest solar financing program, PV grant program.



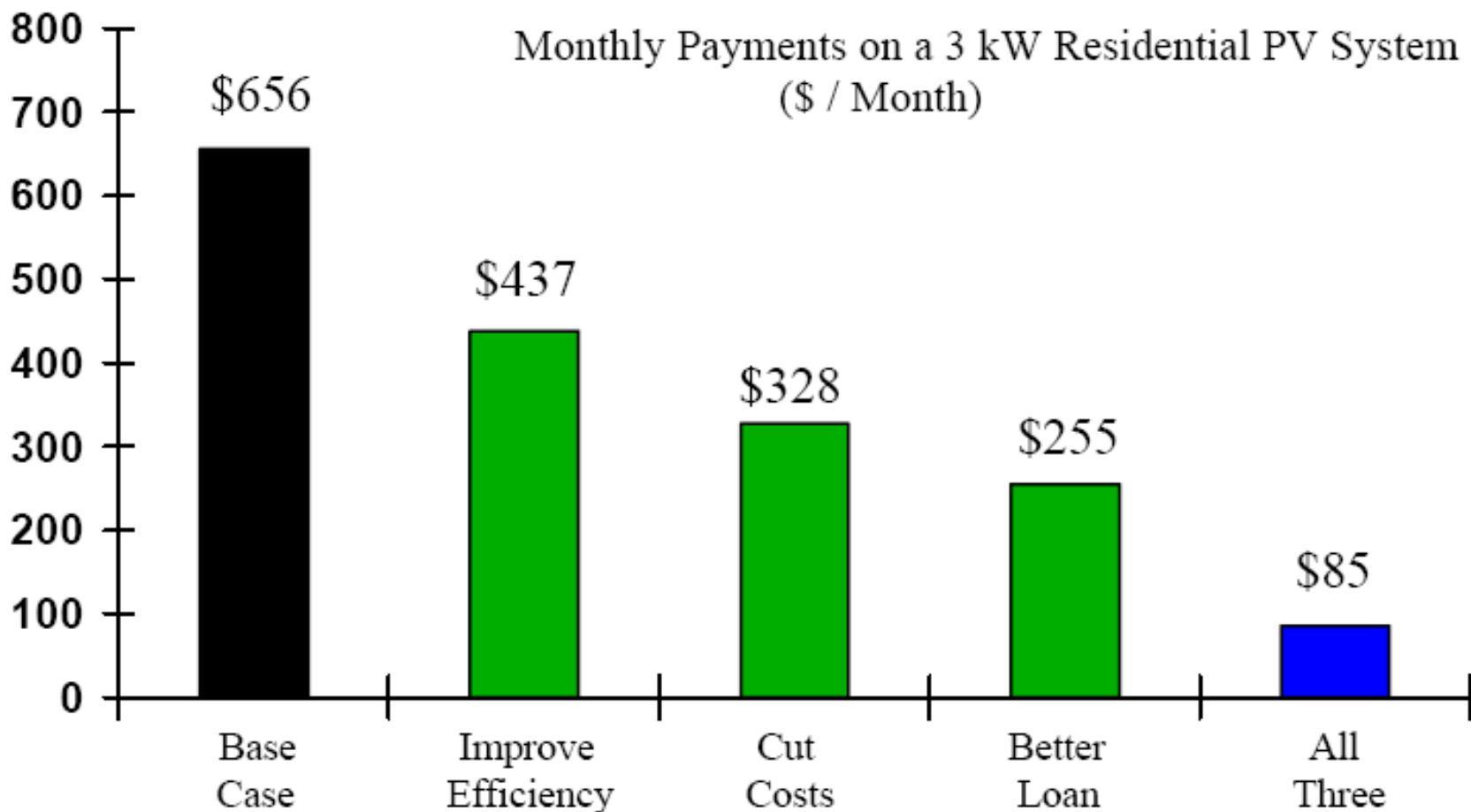


“The ability to obtain a competitive mortgage rate for a residential solar installation is a barrier to the use of the technology.”

- Banks are not yet comfortable with solar, and reflect that in the prohibitive front-end costs they charge along with very high interest rates.
- General Motors Acceptance Corp. (GMAC) Mortgage is the first lender in the country to make residential solar loans at or below commercial rates.
- The financing program makes it easier for homeowners in several other ways.
 - o In addition to the lower interest rates, fees are waived for credit reports, applications, and other front-end costs.
 - o GMAC will stretch qualifying ratios by up to 2%, taking into account increased cash flow due to energy savings, to qualify borrowers for larger loans.
- GMAC recruited the Solar Energy Industries Association (SEIA) as a partner to help train GMAC loan officers to understand the ins and outs of solar financing.



How Important Can Financing Be?



Answer: It depends on the rates and terms of the loan

Source: SolarBank Project, 1999



Here are some approaches DOE is considering . . .

- **Internal Resources:** Create analytical and strategic resource for the analysis and resolution of financial/insurance issues.
- **Education & Information Exchange:**
 - Work with interested financial and insurance community members to promote awareness of current solar system purchase instruments as well as to create new ones based on more accurate assessments of solar risk.
 - Provide “best practice” information and techniques in key markets across the country, to utilities, builders, and States.
 - Build better relationships with utilities to understand their potential concerns with solar technologies in order to help prevent utilities from hindering progress in this area.
 - Enhance consumer understanding and awareness of public incentives and utility programs.



DOE is considering taking the following approaches . . .

- **Standardization & Simplification:**
 - Encourage the creation of simpler financing mechanisms and loan processes to make it easier to purchase solar systems.
 - Ensure the availability of conventional mortgage financing for solar technologies in both retrofits and new building.
- **New Techniques and Instruments:**
 - Encourage the creation of novel techniques and instruments by the financial and insurance industry, as well as utilities, that make purchases easier.



DOE is considering the following activities ...

- **Establish a “financing and insurance” working group to:**
 - Examine the current financing and insurance markets.
 - Determine both public and private “best practice” financing approaches for PV, SWH, and CSP.
 - Encourage the development of models that accurately portray PV system characteristics and performance to ensure accurate risk and value assessment:
 - For use by financial community in providing funding mechanisms
 - For use by utilities and insurance companies to set end-user liability insurance requirements.
 - Examine greentags and RECs as financial incentives to end users.
 - Examine new models, such as the SunEdison™ solar service company model.



DOE is considering the following activities ...

- **Establish mechanisms for ongoing information exchange / dialogue** with financial, insurance, utility and building communities.
 - For example, can encourage builders to use advances in analysis, such as using cash flow analysis instead of traditional payback methods to increase consumer understanding of immediate benefits.
- **Target utilities** through focused efforts to
 - allay their concerns about solar
 - ensure they are aware of the benefits available through public financing options
 - promote their financial involvement with solar installation.
- **Encourage new entrants** into the finance/insurance solar market.



1. How do we encourage utilities to support and potentially offer financing for solar systems, especially PV and thermal (in an all electric home)? Can utilities see the widespread growth of PV as a business opportunity instead of a threat?
2. What is the best approach for educating builders and homebuyers on the solar financing opportunities available to them?
3. How can we engage insurers on a national level to offer coverage based on accurate risk assessments?
4. How helpful would be the Federal development of standard contracts and design tools in facilitating purchases?
5. What types of advances in the solar financial and insurance area would promote more solar power system installations, and how can we encourage their development?
6. How can we encourage financial institutions to offer solar loans?