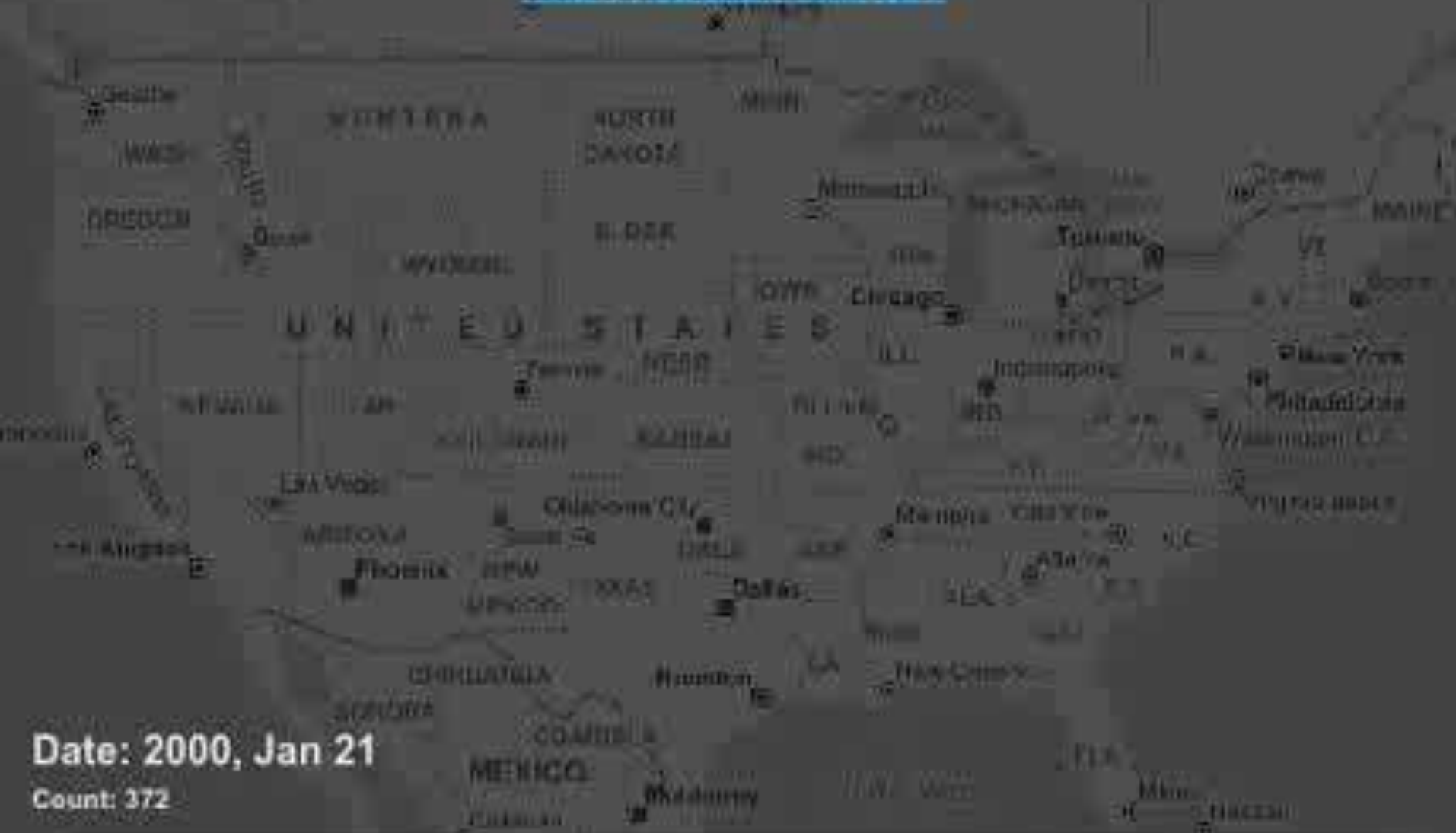


<http://openpv.nrel.gov>



2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011



SOLAR AMERICA COMMUNITIES

Getting Started with Solar

Solar Power International 2011

Dallas, TX

October 21, 2011

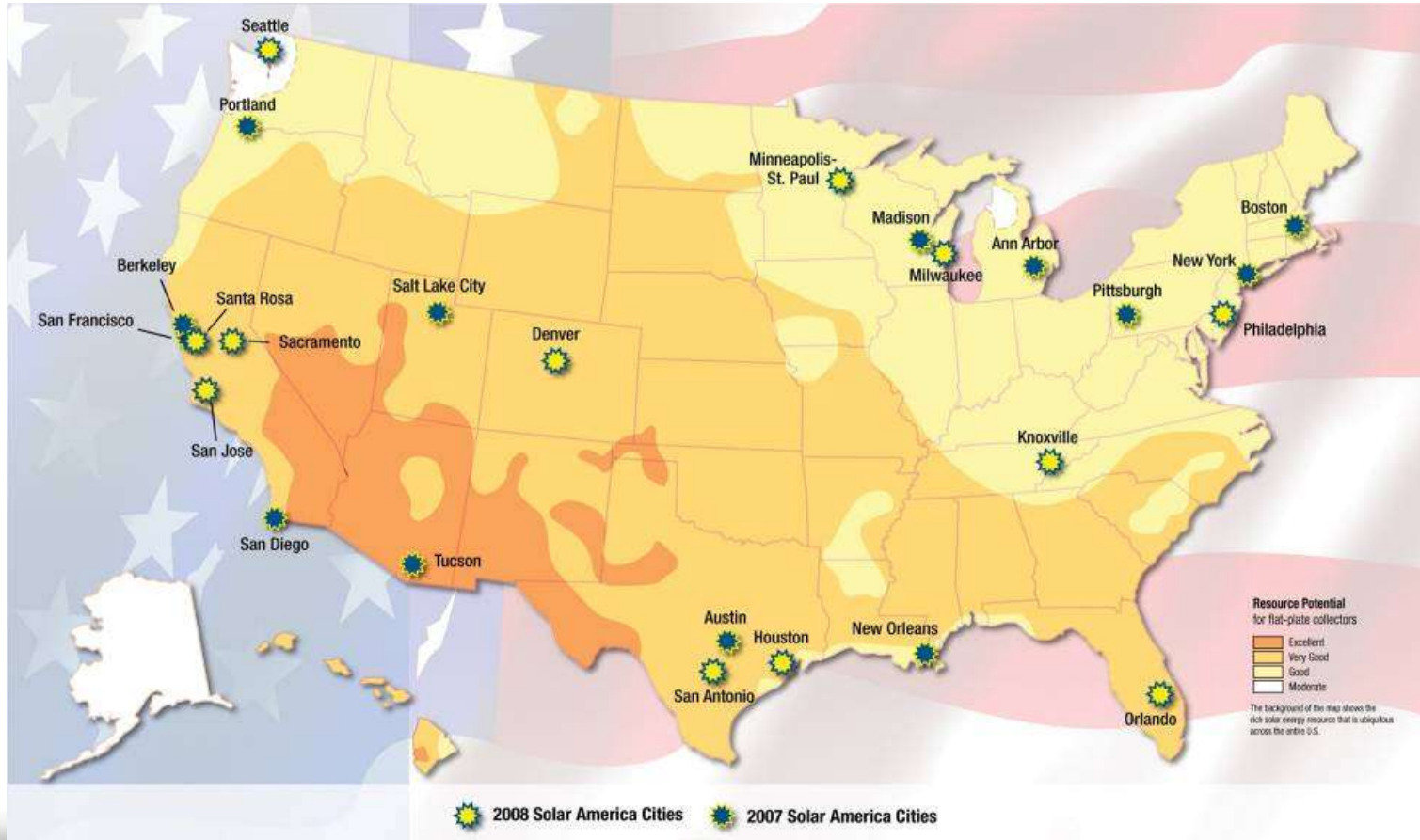
About Solar America Communities

Solar America Communities is a U.S. Department of Energy (DOE) program designed to increase the use and integration of solar energy in communities across the United States. The International City/County Management Association (ICMA) and ICLEI-Local Governments for Sustainability were competitively selected by DOE to conduct outreach to local governments across the United States, enabling them to replicate successful solar practices and quickly expand local adoption of solar energy. **For more information visit www.solaramericacommunities.energy.gov.**

PARTICIPATING ORGANIZATIONS



SOLAR AMERICA CITIES



Our Mission:

- Enable local governments, community and private sector stakeholders to replicate successful solar practices and quickly expand local adoption of solar energy

Our Objectives:

- Increase installed capacity of solar electricity in U.S. communities
- Streamline and standardize **permitting and interconnection processes**
- Improve **planning and zoning codes/regulations** for solar electric technologies
- Increase **access to solar financing options**

As a result of your participation in this workshop and tour, you should be able to:

OBJECTIVES

Identify and address the popular myths and true barriers that commonly stand in the way of adoption of solar technologies

Identify and leverage a variety of financial mechanisms and incentives to make investment in solar more attractive in their local jurisdictions

Identify opportunities to work with electric utility providers to create ideal solar market conditions

SolarAmericaCommunities.Energy.Gov

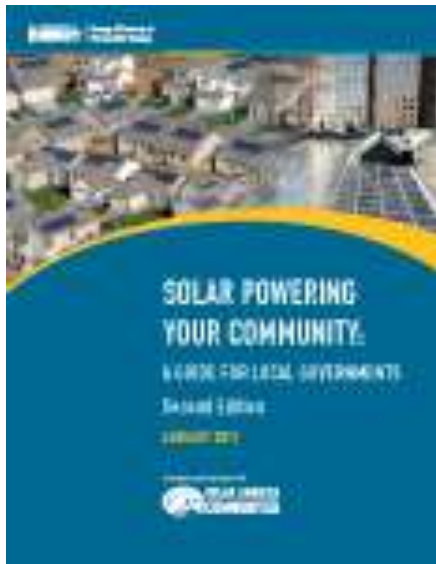


The screenshot shows the homepage of the Solar America Communities website. At the top, it features the U.S. Department of Energy logo and navigation links for 'Energy Efficiency & Renewable Energy'. Below this is a search bar and a main navigation menu with categories like 'HOME', 'ABOUT', 'NEWS', 'EVENTS', 'RESOURCES', 'FOR THE MEDIA', 'SOLAR AMERICA CITIES', 'DOE SOLAR ENERGY TECHNOLOGIES PROGRAM', and 'SIGN ON LOGIN'. The main content area is titled 'Powering the Communities of Today' and includes a featured article about Berkeley Mayor Bates announcing the Smart Solar Program, a 'HIGHLIGHTS' section with links to 'DOE ANNOUNCES ROOFTOP SOLAR CHALLENGE', '4TH ANNUAL SOLAR AMERICA CITIES MEETING PRESENTATIONS NOW AVAILABLE', and 'SECOND EDITION NOW AVAILABLE! Solar Powering Your Community: A Guide for Local Governments', and a 'GUIDE TO PV GROUP PURCHASING NOW AVAILABLE' and 'GUIDE TO DEVELOPING COMMUNITY SOLAR PV FINANCING PROGRAMS NOW AVAILABLE'. A 'NEWS' section lists recent articles from IREC, DOE, and CNN Money. An 'EVENTS' section lists upcoming conferences like the IEMA Annual Conference and the International Economic Development Council Annual Conference. At the bottom, there are links for 'EERE Home', 'U.S. Department of Energy', 'Contact SAC Webmaster', 'Web Site Policies', 'Security & Privacy', and 'USA.gov', along with the date 'Thursday, August 18, 2011'.

Website Features

- Upcoming SAC event listings
- Solar news for local govts
- Solar America Cities' best practices
- Solar resources for local governments
 - Workshop and Webinars
 - Tools and Reports
 - Podcasts

On Your Radar...



Solar Powering Your Community: A Guide for Local Governments (2011)

The U.S. Department of Energy developed this comprehensive resource to assist local governments and stakeholders in building sustainable local solar markets. The guide introduces a range of policy and program options that have been successfully field tested in cities and counties around the country.

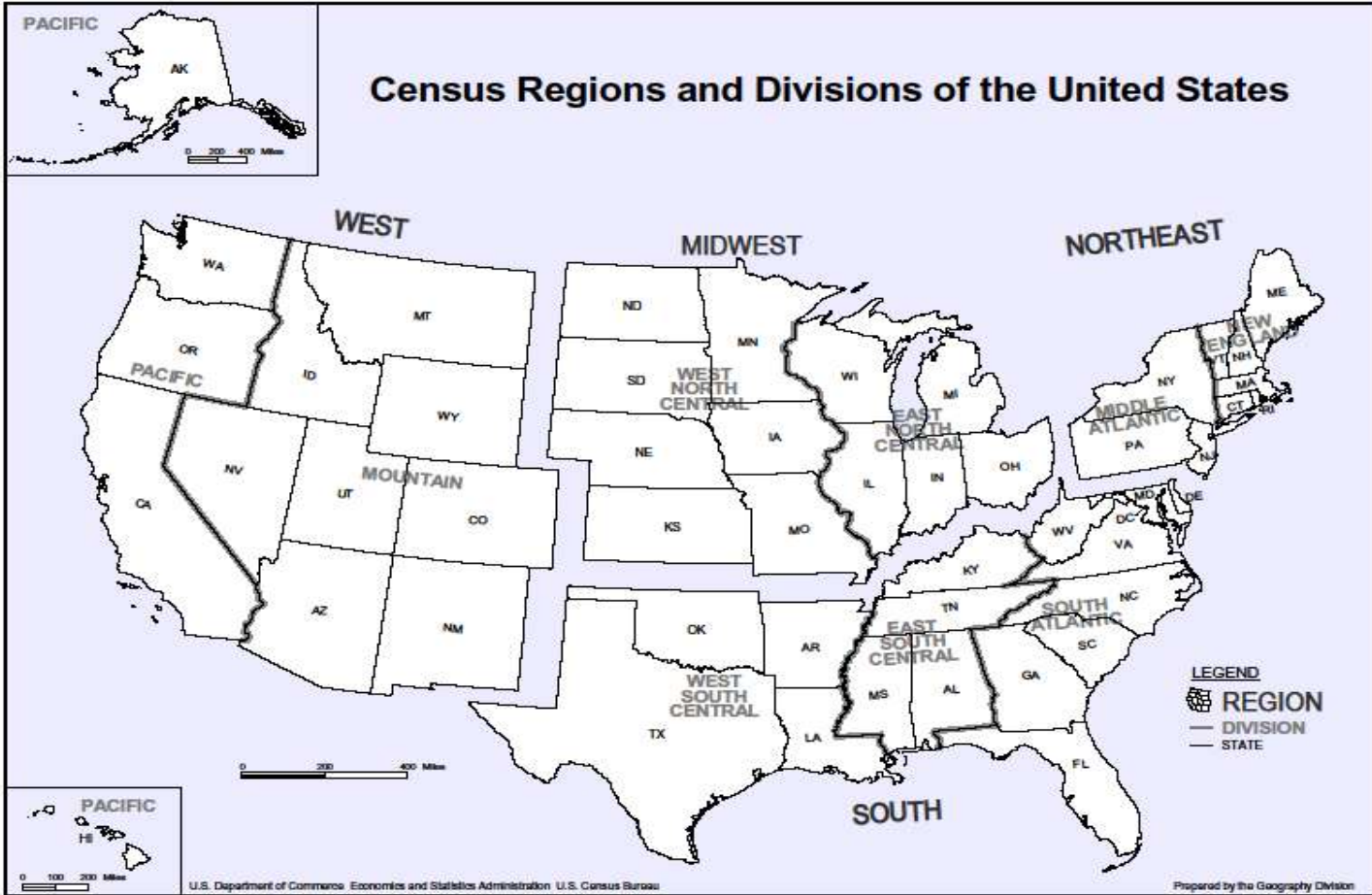
Today's workshop presentation & notes will be posted here:

www.SolarAmericaCommunities.Energy.Gov/Resources

Workshop Agenda

- Coffee and Networking (8:00-9:00)
- Session 1 – Solar: Dispelling the Myths and Identifying Opportunities (9:00-10:00)
- Session 2 – Financing Options and Local Government Installations (10:15-11:30)
- Session 3 – Understanding Utility Policies and Procedures (11:45-12:45)
- Conclusion (12:45-1:00)

What Region of the Country Are You From?



What Region of This Country Are You From?



Introduction to Solar Technologies



Source EPRI and NREL

Photovoltaic (PV) Solar Energy

Directly generates electricity from sunlight

Different types you might come across

Building Integrated PV (BIPV), another type

- > Crystalline silicon
- > Thin-film

- > Shingles
- > Skylights
- > Architectural glass and granite like materials

Source: NREL



Source: www.ecofriend.org



Photo Source: NREL <http://www.nrel.gov/data/pix/>

Concentrating Solar Power (CSP)



Central Receiver
or Power Tower

Parabolic trough



Compact linear
Fresnel reflector



Parabolic – dish engine

Solar Heating & Cooling/ Solar Hot Water (SHC/SHW)

Solar energy used to heat water or other medium

Applications

- Solar pool heating
- Domestic hot water use
- Process hot water
- Space heating
- Solar assisted cooling



Solar water heating system installed by goSolar on Fenway Park provides one third of the stadium's hot water.
Courtesy: Boston Red Sox



Source EPRI and NREL 15

Solar in Context



Source: www.nextgenpe.com

Introductions

- In pairs, interview each other (2 minutes each)

Where do you
work?

What solar
projects are you
currently working
on?

If solar isn't widely
adopted in your
community, what
are the barriers?

- In group, volunteer some of your responses

Session I: Solar - Dispelling the Myths and Identifying Opportunities

Andrea Luecke, The Solar Foundation andrea.luecke@solarfound.org
Jane Pulaski, Interstate Renewable Energy Council janep@irecusa.org

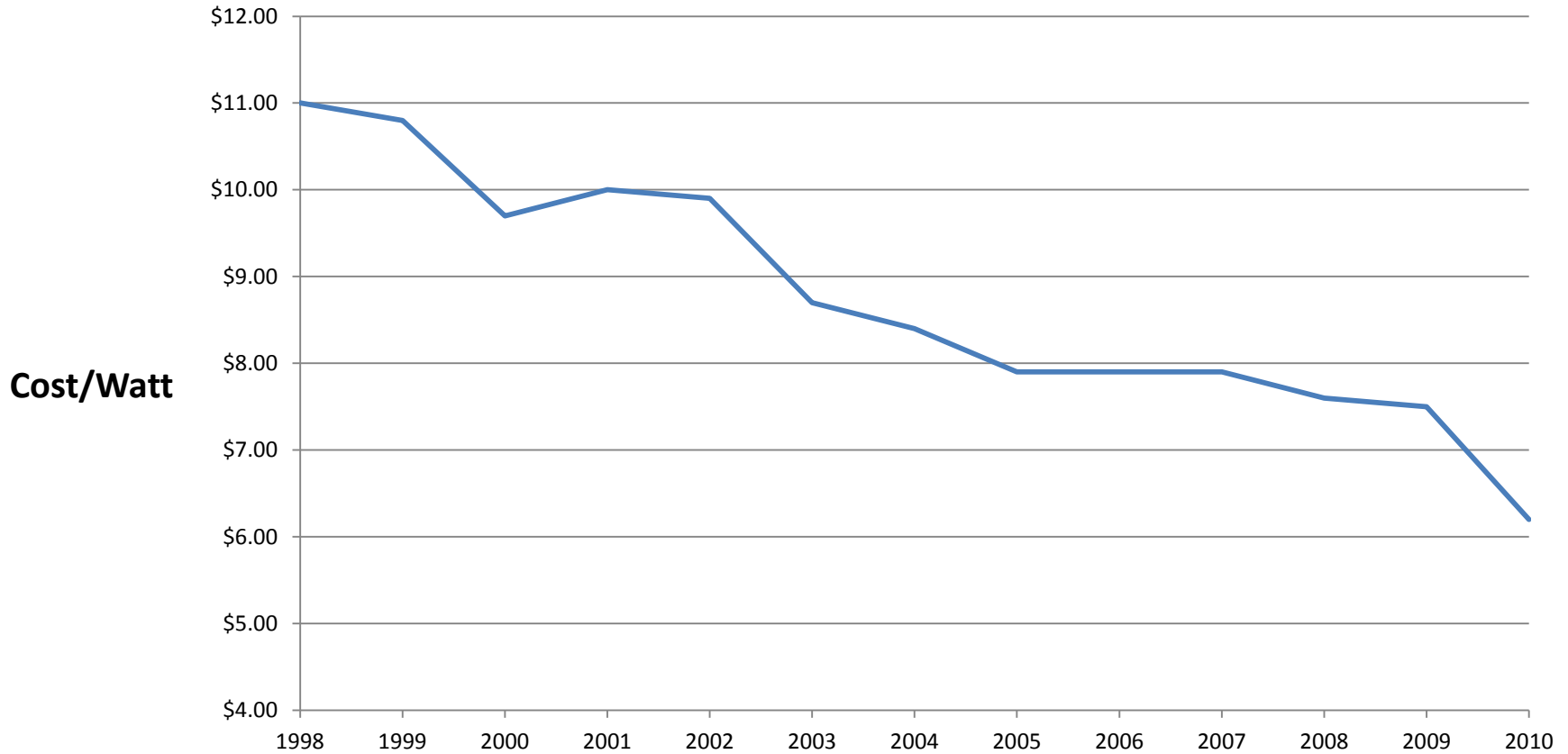
Solar Myths





Solar is
too expensive

PV Costs per Watt

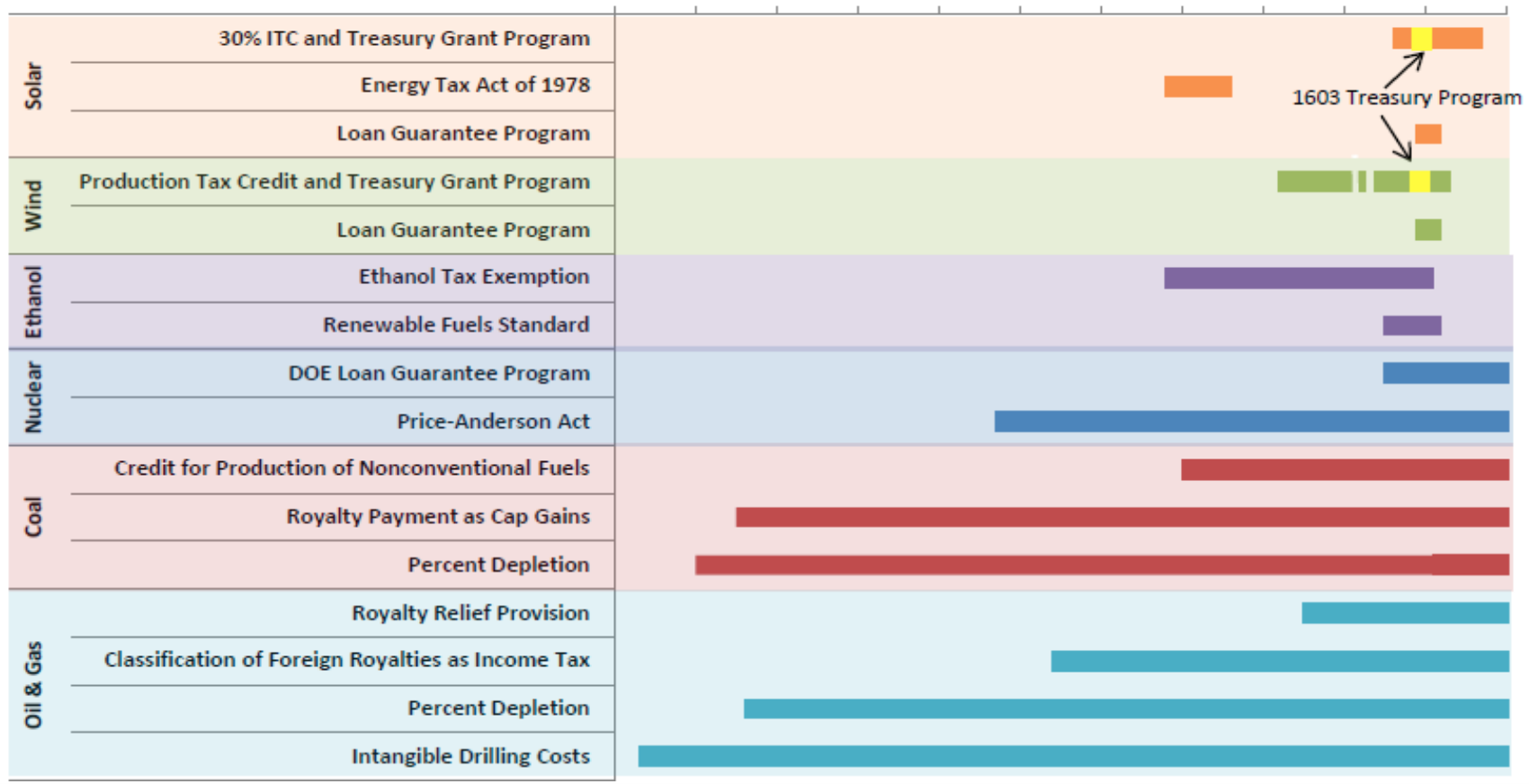




Solar enjoys LOTS of
govt. subsidies

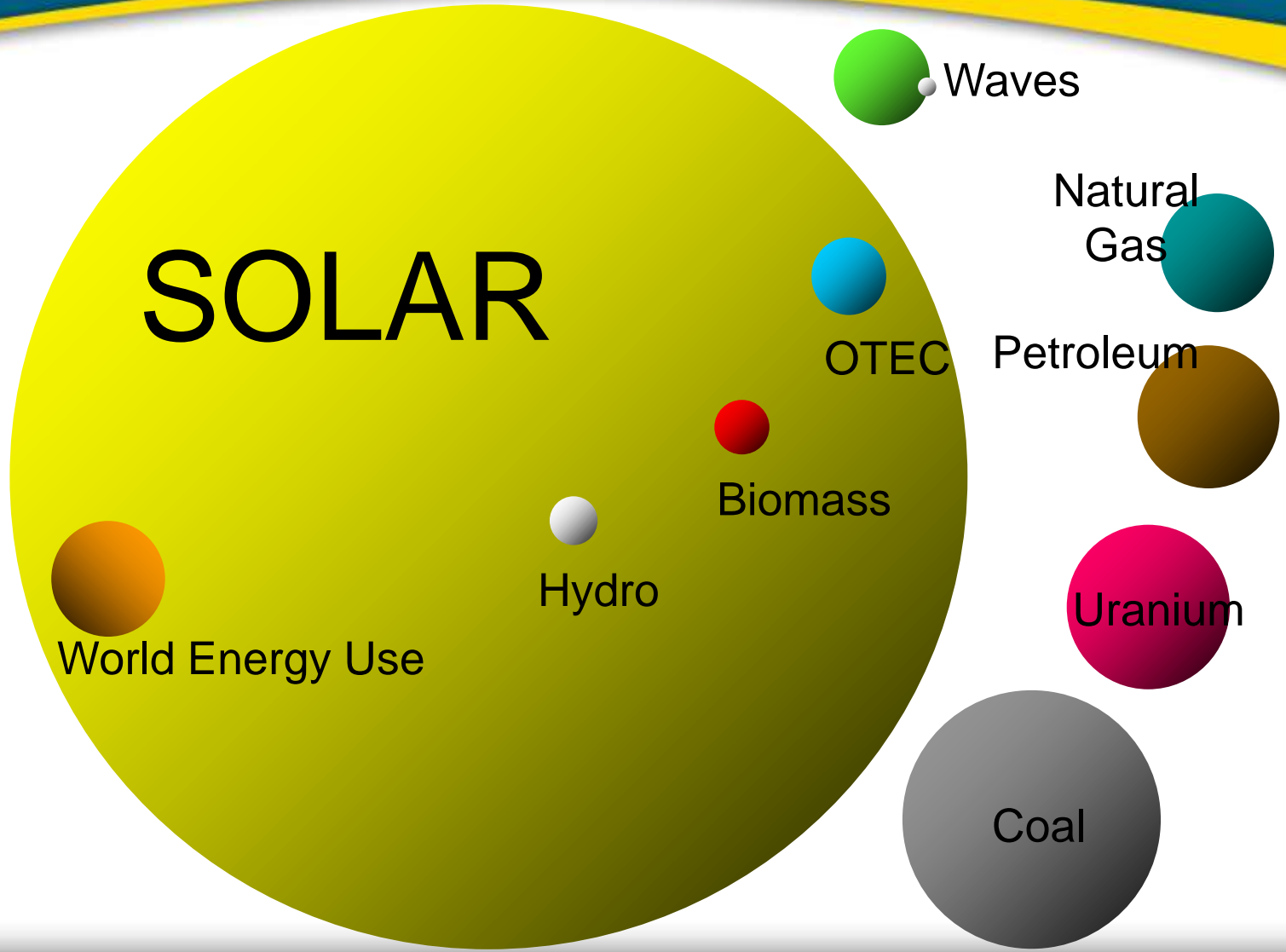
History of Major Energy Incentives

1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 2010 2020





Solar can't possibly
meet our energy
demands





Solar is only for
environmentalists



US Coast Guard will install 2.89 MW of PV



5.38 MW on-site solar installation (Flanders, N.J.)



47.5 kW PV Installation (Montana)



Today's solar
technology will be
obsolete tomorrow





Solar detracts from
the value of my home





Solar is intermittent



Photo Credit: NREL



Solar takes up too
much land



Oregon Solar Highway



10 MW Exelon City Solar (Chicago, IL)



75kW Parking Canopy at Johnson & Johnson (Pennsylvania)



130kW PV Installation in Tessman Landfill (San Antonio, TX)



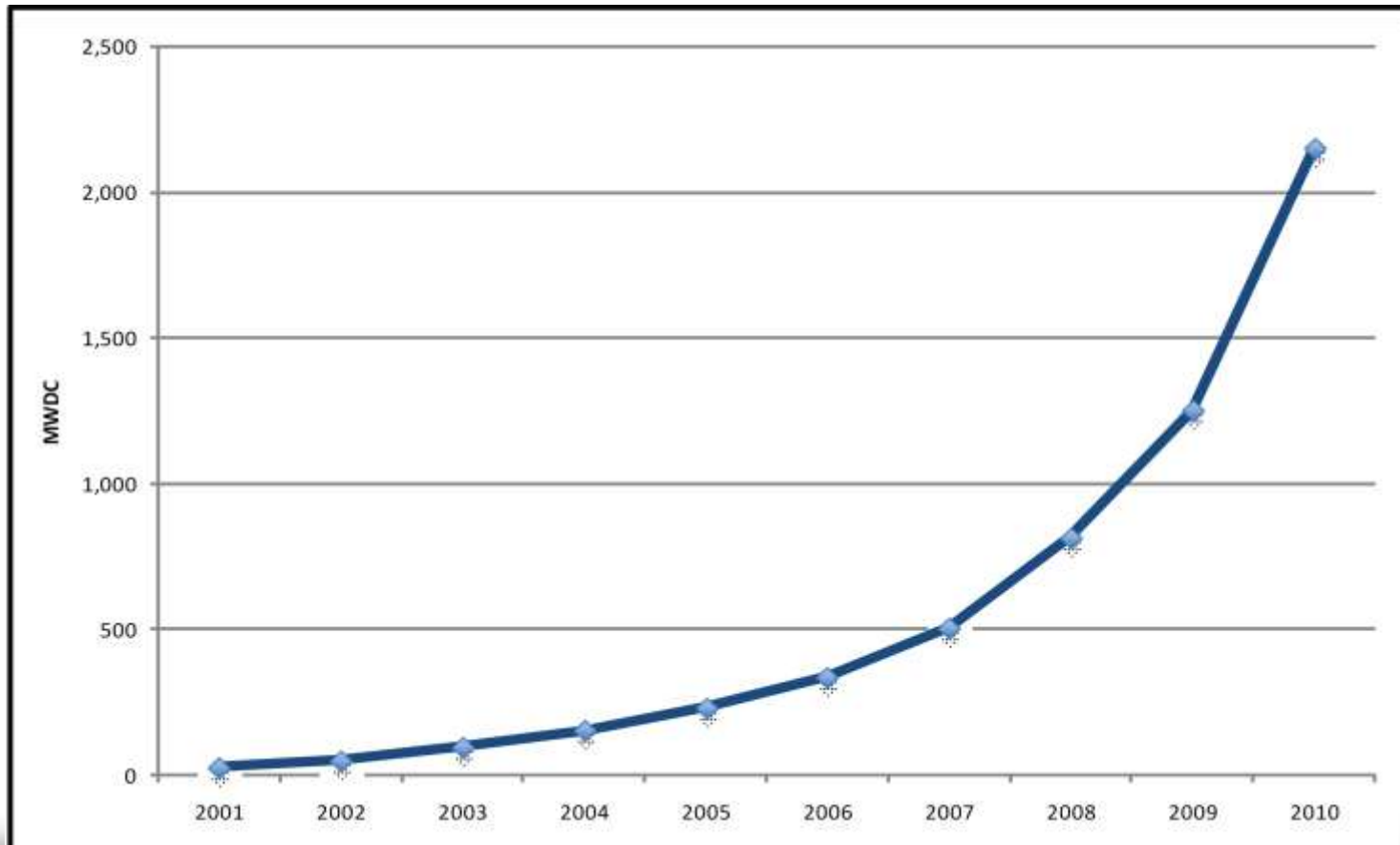
496kW San Francisco International Airport



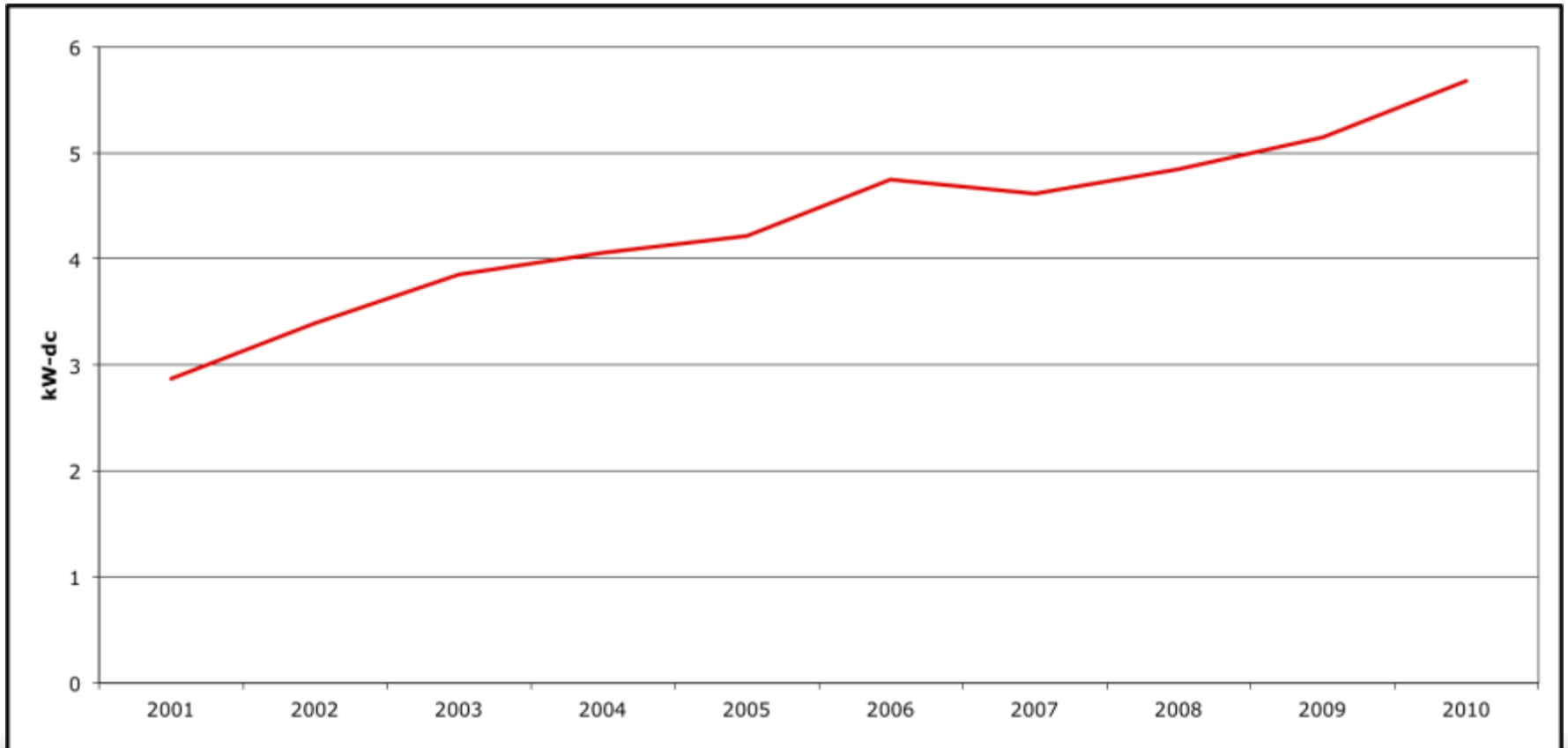
Convergence Energy Solar Farm (14 acres), Lake Geneva, WI



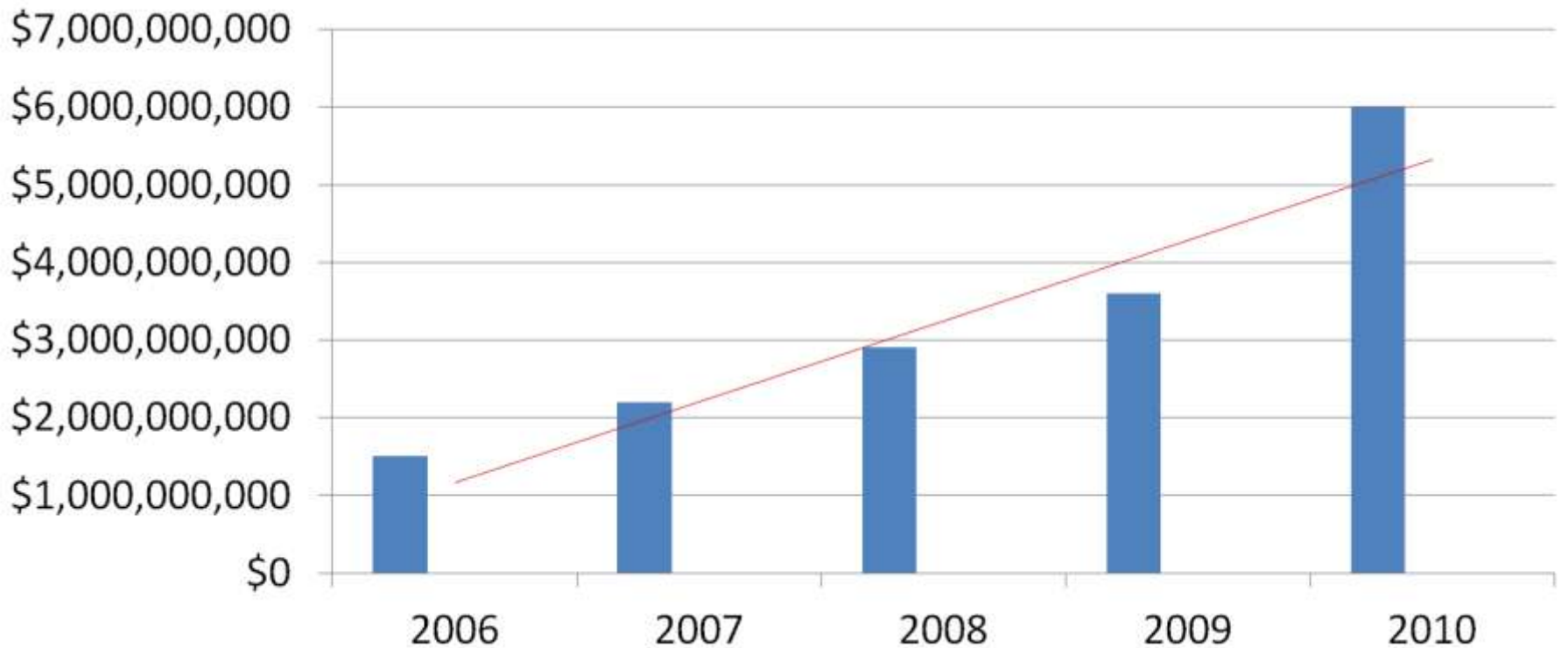
Installations on the rise



System size on the rise



US solar market growth



Net solar exports: ~ \$2B in 2010

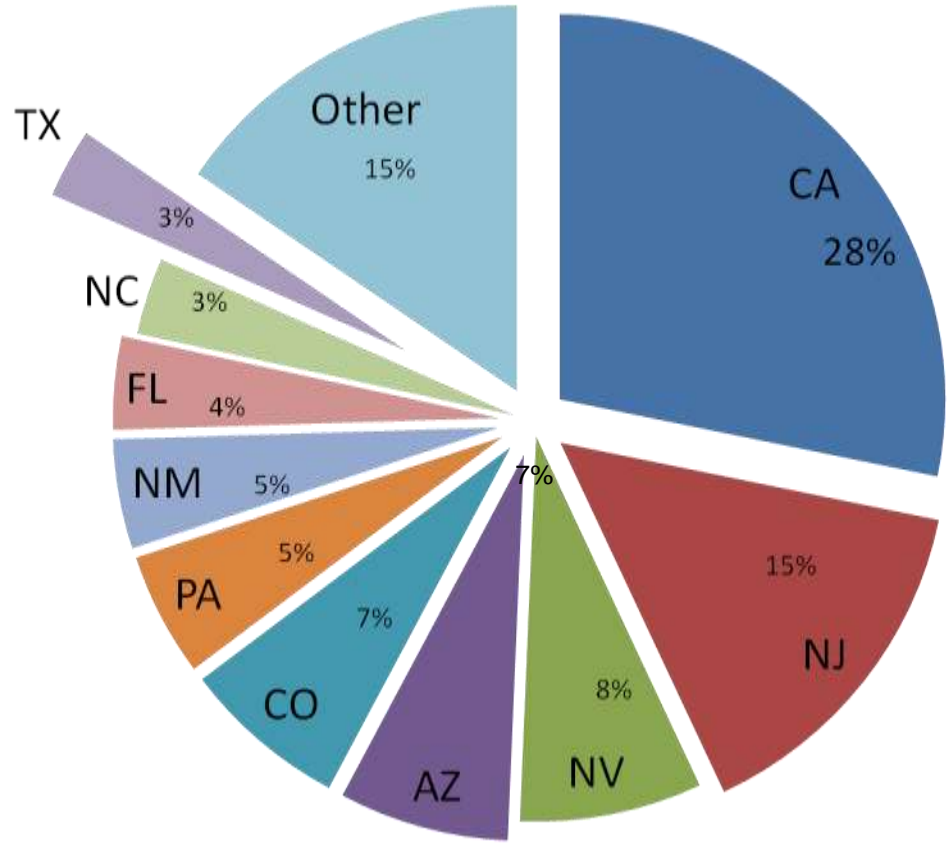


Where's the market(s)?

In 2009, CA accounted for
49% of all grid-connected
PV capacity

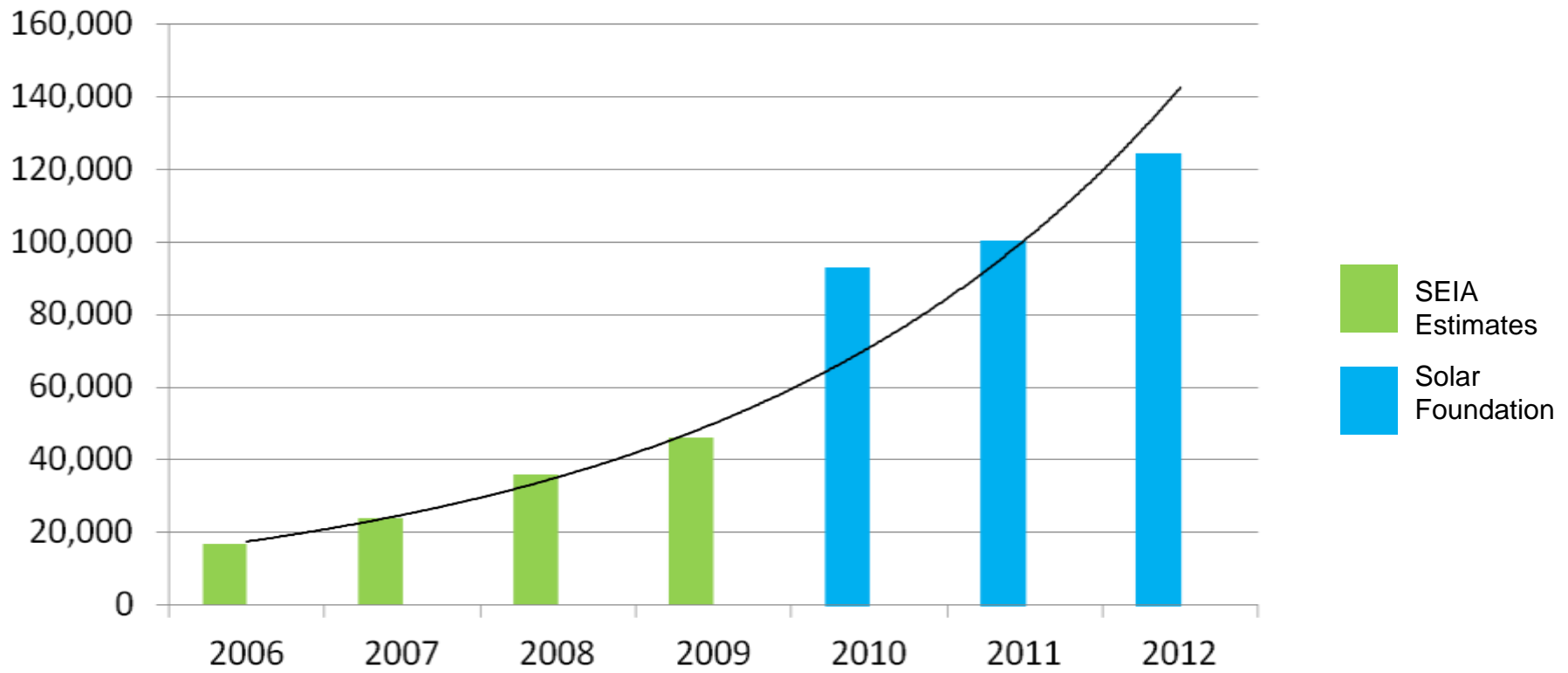
Where's the market(s) today?

US markets in 2010



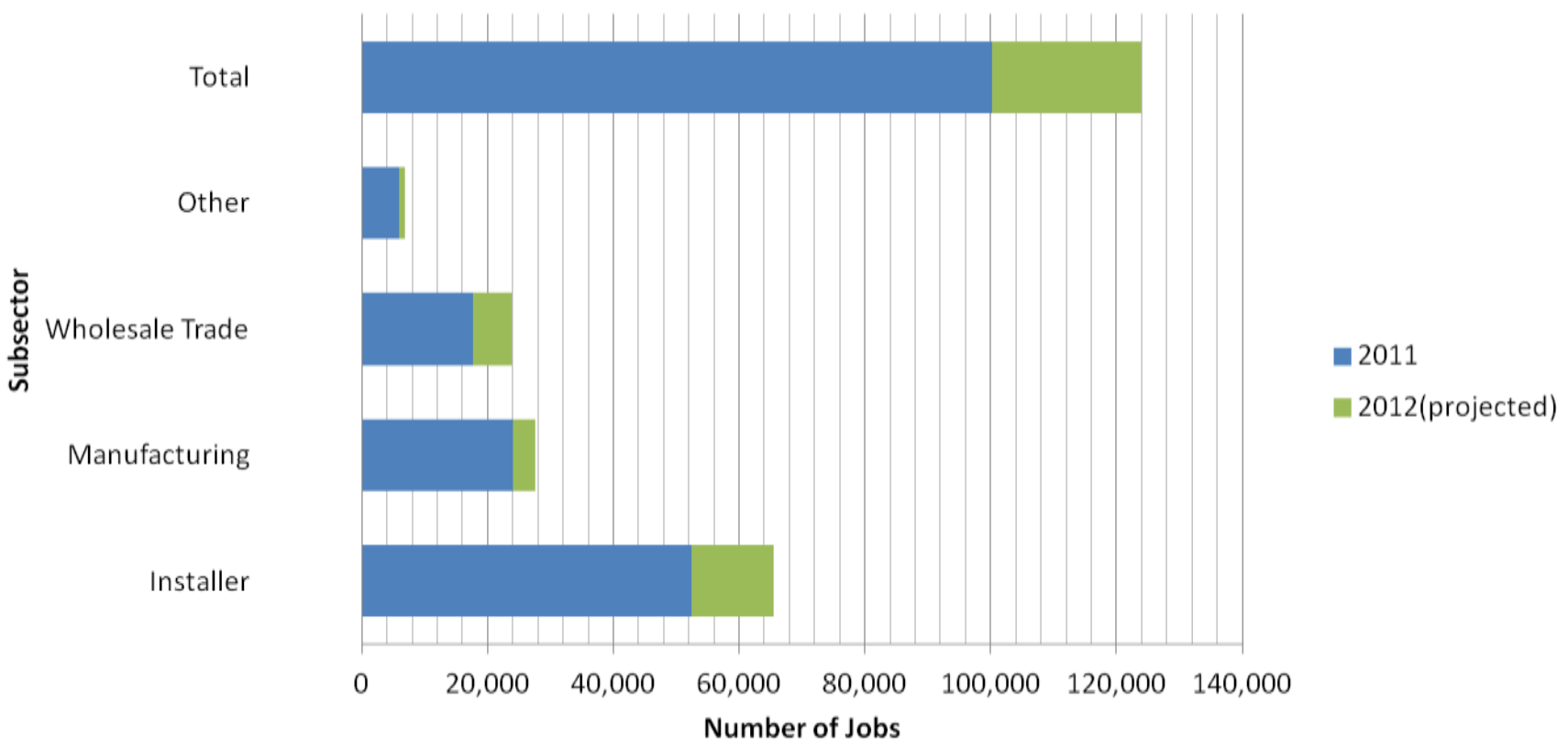
Markets are diversifying

Go solar.

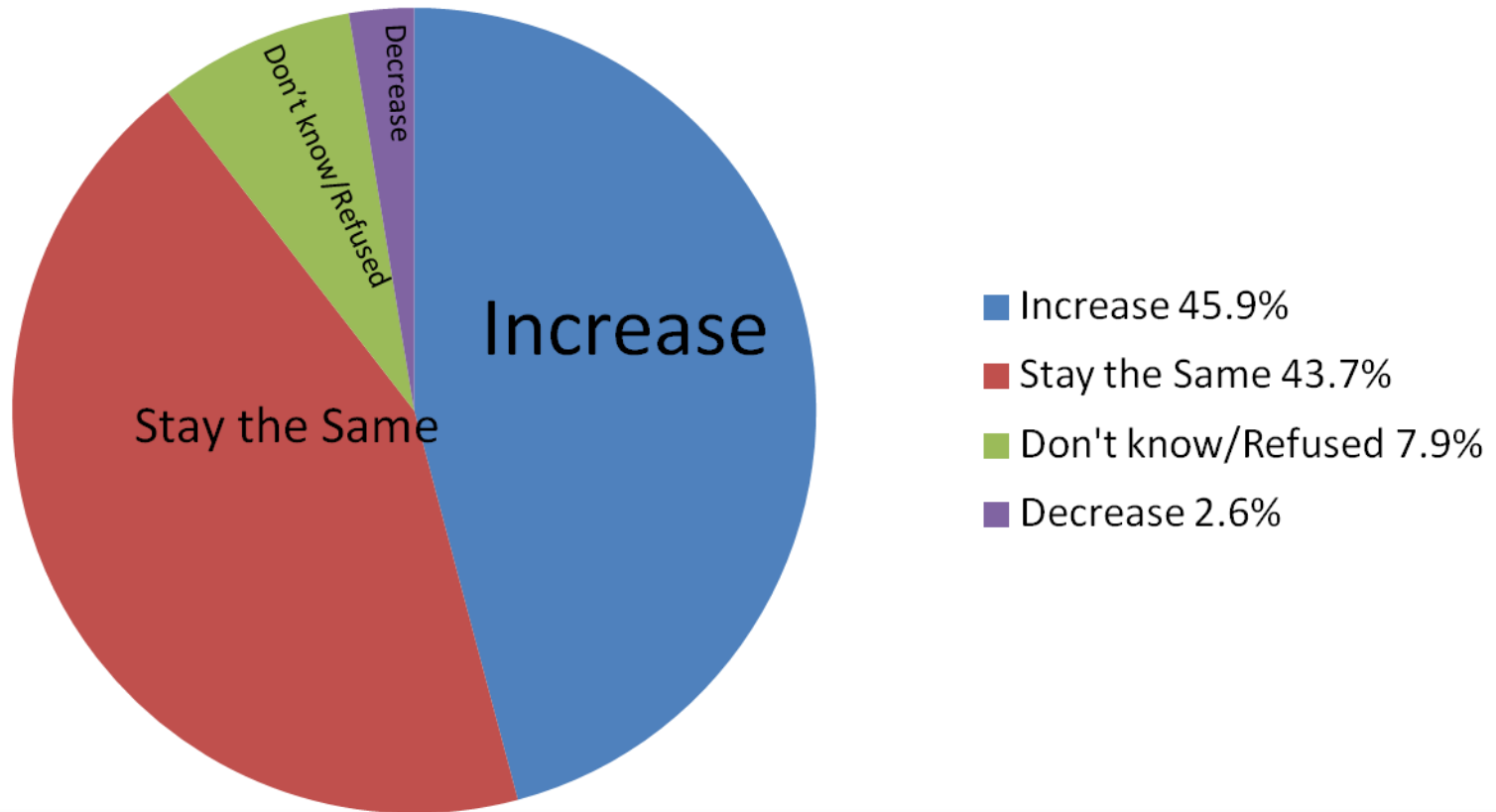


Source: SEIA Estimates (2006-2009), The Solar Foundation's National Solar Jobs Census 2010 (2010), The Solar Foundation's National Solar Jobs Census 2011 (2011-2012).

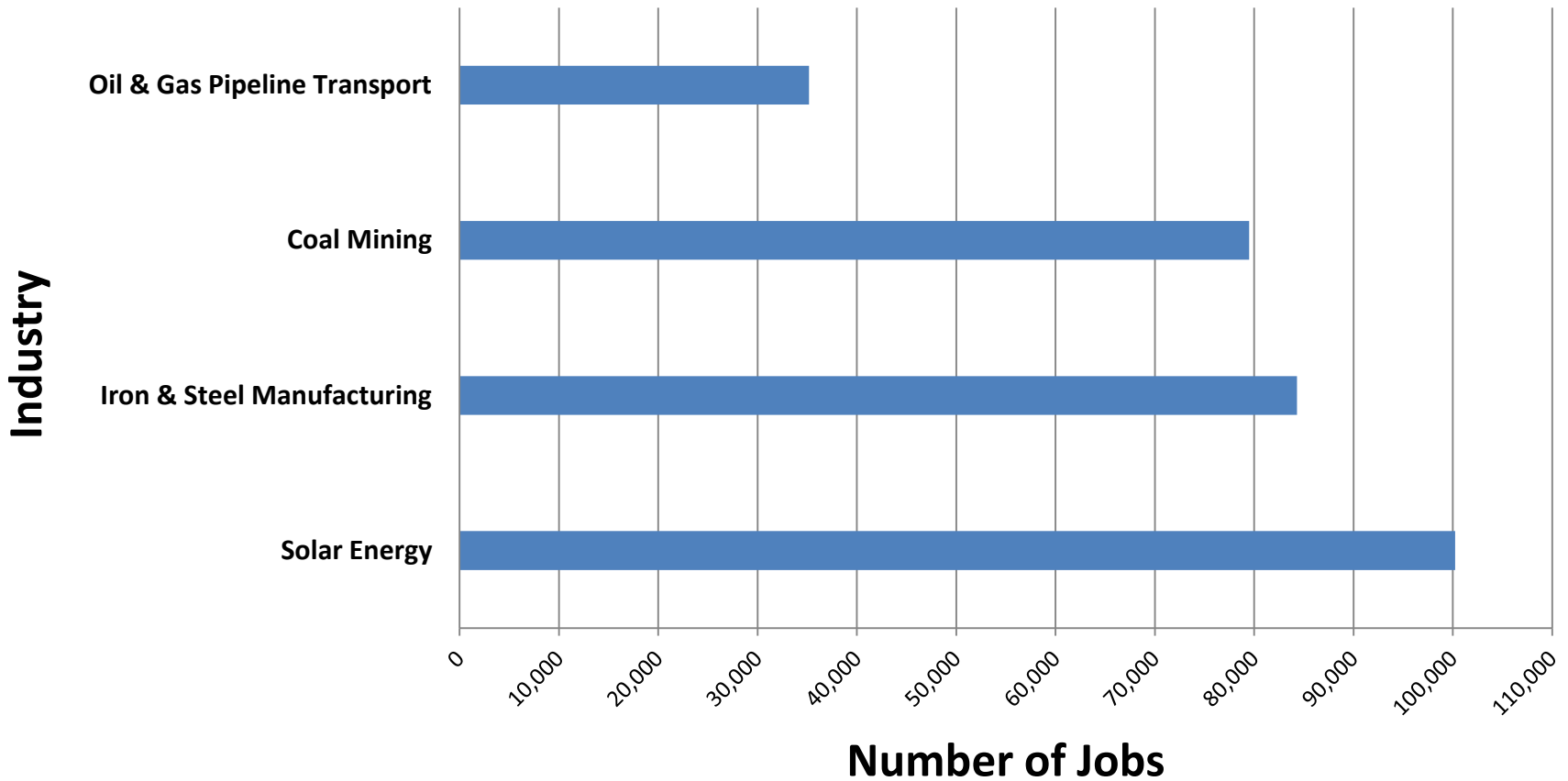
Job growth by subsector

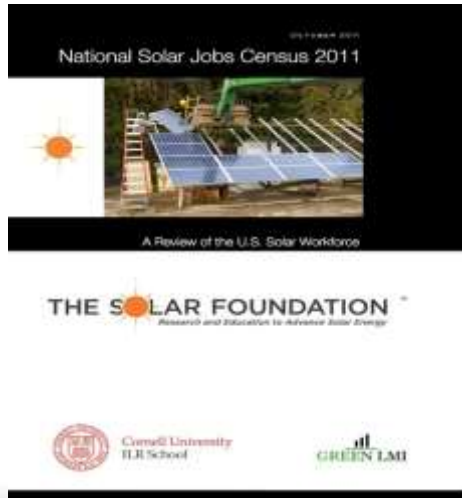


Hiring Expectations, All Firms Between August 2011–2012



Total jobs by industry





Austin, Houston, San Antonio Highlights of Texas Solar America Cities Activities

Jennifer Ronk, Houston Advanced Research Center jronk@harc.edu
Michael VanZandt, Austin Energy Michael.vanzandt@austinenergy.com
Liza C Meyer, City of Houston Liza.Meyer@sanantonio.gov

Austin



Credit: Austin Energy/NREL PIX 18401

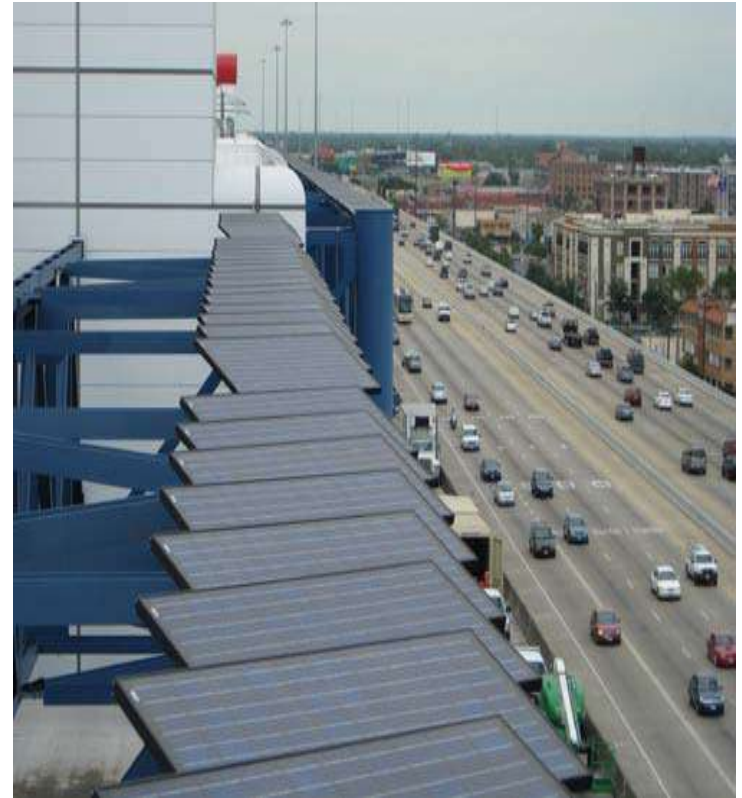
San Antonio, TX



Houston



Credit: iStock 9521436



Credit: City of Houston/NREL PIX 19379

San Antonio

- Successfully implemented the first phase of the “Bring Solar Home” marketing campaign
- Completed the Blue Wing Solar Project 14 MW PV Plant
- Completed a Net-Zero Home that is certified as a “Level 3 Solar Home” by Build San Antonio Green

San Antonio



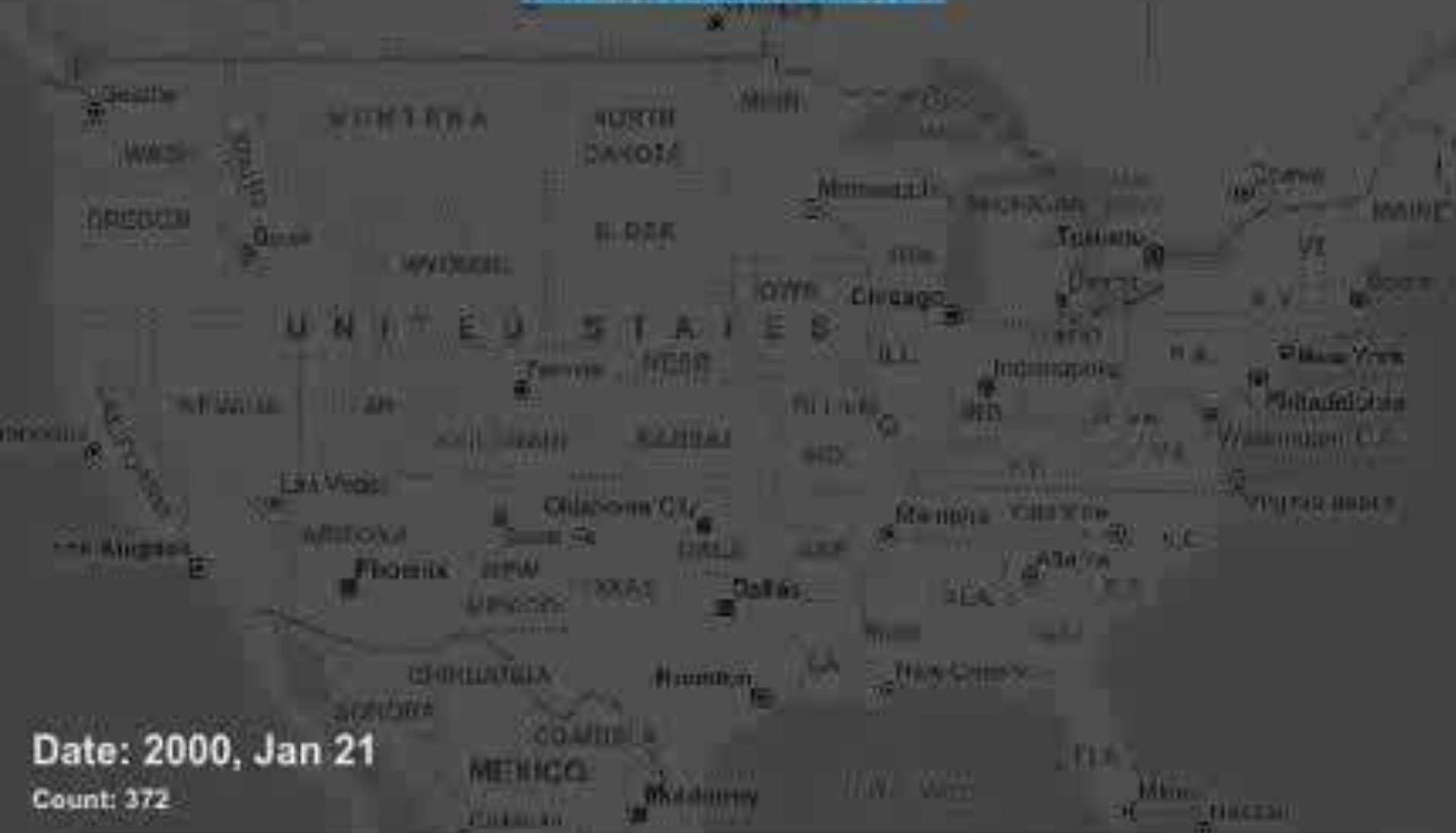
Credit: CPS Energy/NREL PIX 19476



Credit: CPS Energy/NREL PIX 19477

10 Minute Break

<http://openpv.nrel.gov>



2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011

Session II: *Financing options and Local Government Installations*

Amy Heinemann, NCSC/DSIRE amy.heinemann@ncsu.edu

DSIRE SOLAR

solar policy information



Resources

RPS Data

Summary Maps

Summary Tables

Library

What's New?

Search

myDSIRE

customize DSIRE for your organization



DSIRE is a comprehensive source of information on state, local, utility and federal incentives and policies that promote renewable energy and energy efficiency. Established in 1995 and funded by the U.S. Department of Energy, DSIRE is an ongoing project of the N.C. Solar Center and the Interstate Renewable Energy Council.

Search DSIRE



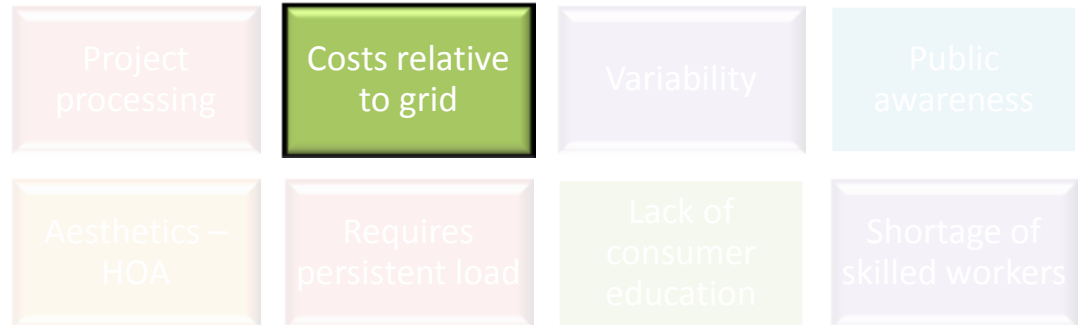
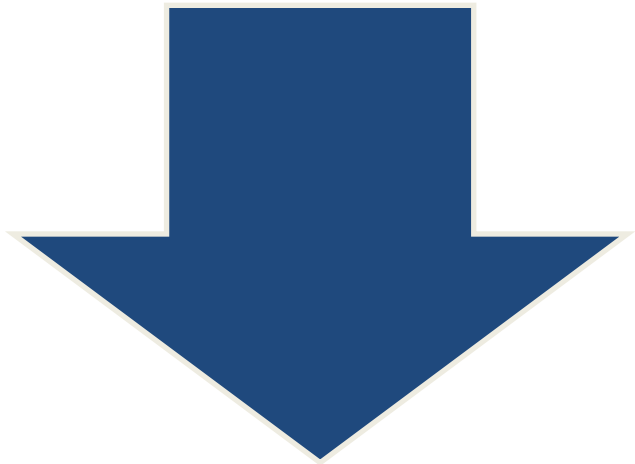
View Federal Incentives

DSIRE SOLAR

see new solar policy guide



Barriers Remain...



Average Installed Cost of Solar

Residential 5.7 kW (\$6.42/watt) = \$36,594

Commercial 81 kW (\$5.20/watt) = \$421,200

Utility 1.45 MW (\$3.75/watt) = \$5,437,500



Financial Measures to Make Solar More Affordable

RPS/SRECs

Rebates

PBIs/FITs

Loans/
Financing

PACE

3rd Party
Ownership

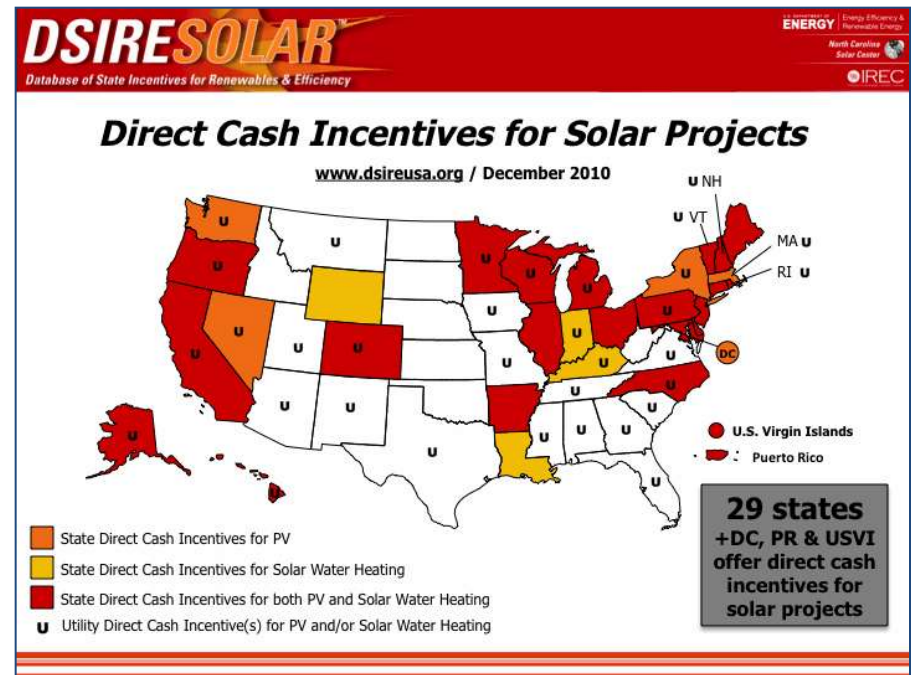
Bulk
Purchasing

Community
Solar

Property &
Sales Taxes

Direct Cash Incentives

- Rebates, grants, performance-based incentives, feed-in tariffs, REC purchase programs
- Often state programs, but can be implemented locally
- 43 states have some form of a direct cash incentive



For more information see: <http://www.dsireusa.org/solar/comparisontables/>

Austin, TX: Solar Rebate Program

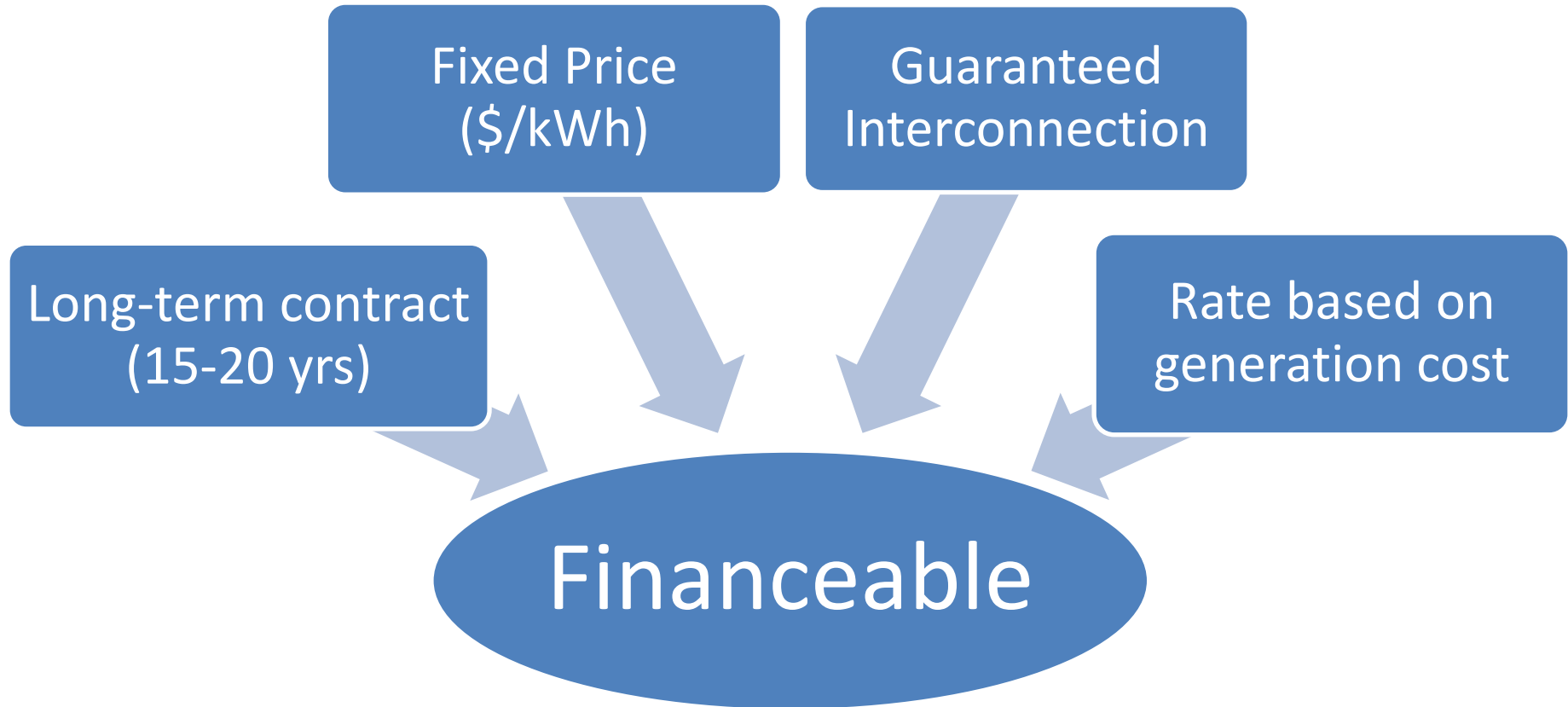


Installed Cost of Residential Solar After Incentives

Residential 5.7 kW (\$6.42/watt)	\$36,594
Austin Energy Rebate (\$3/watt)	(\$17,100)
Cost to Homeowner After Rebate	\$19,494
30% Federal Tax Credit	(\$5,848)
Price After Incentives (\$2.39/watt)	\$13,646

Cost of electricity from PV system over
25 years ~\$0.07/kWh

Feed-In Tariffs (FITs)



Ownership Options

Direct
Ownership

3rd Party
Ownership

Hosting
System

SREC
Purchase

Community
Solar

Key Considerations

- Are you a taxpaying entity?
- Do you have access to financing or available cash?
- How does this rank (priority) compared to other potential investments?
- Is 3rd party ownership allowed in the state?
- Can you enter into long-term contracts?
- Do you want to own the system?
- Do you have a municipal utility?
- Do you want to own RECs, or need them for compliance?

Direct Ownership

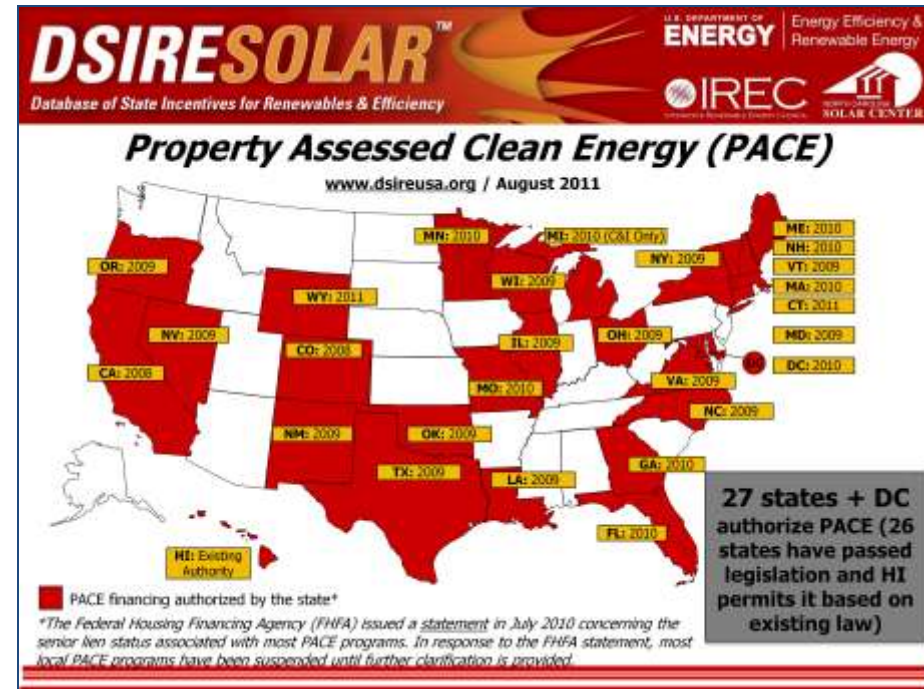
- Direct purchase (no financing needed)
- Traditional forms of debt
- Grant financed
- ESCO/performance contracting
- Loans
- PACE financing
- On-bill financing?

Attractive Loan Options

- Local governments and utilities can develop loan programs:
 - direct loans (e.g., revolving loan fund)
 - loans through private lenders (e.g., credit enhancement)
- Benefits and drawbacks exist for both approaches
- The goal is to increase **access** to financing or induce **additional** improvements
- Various funding options exist

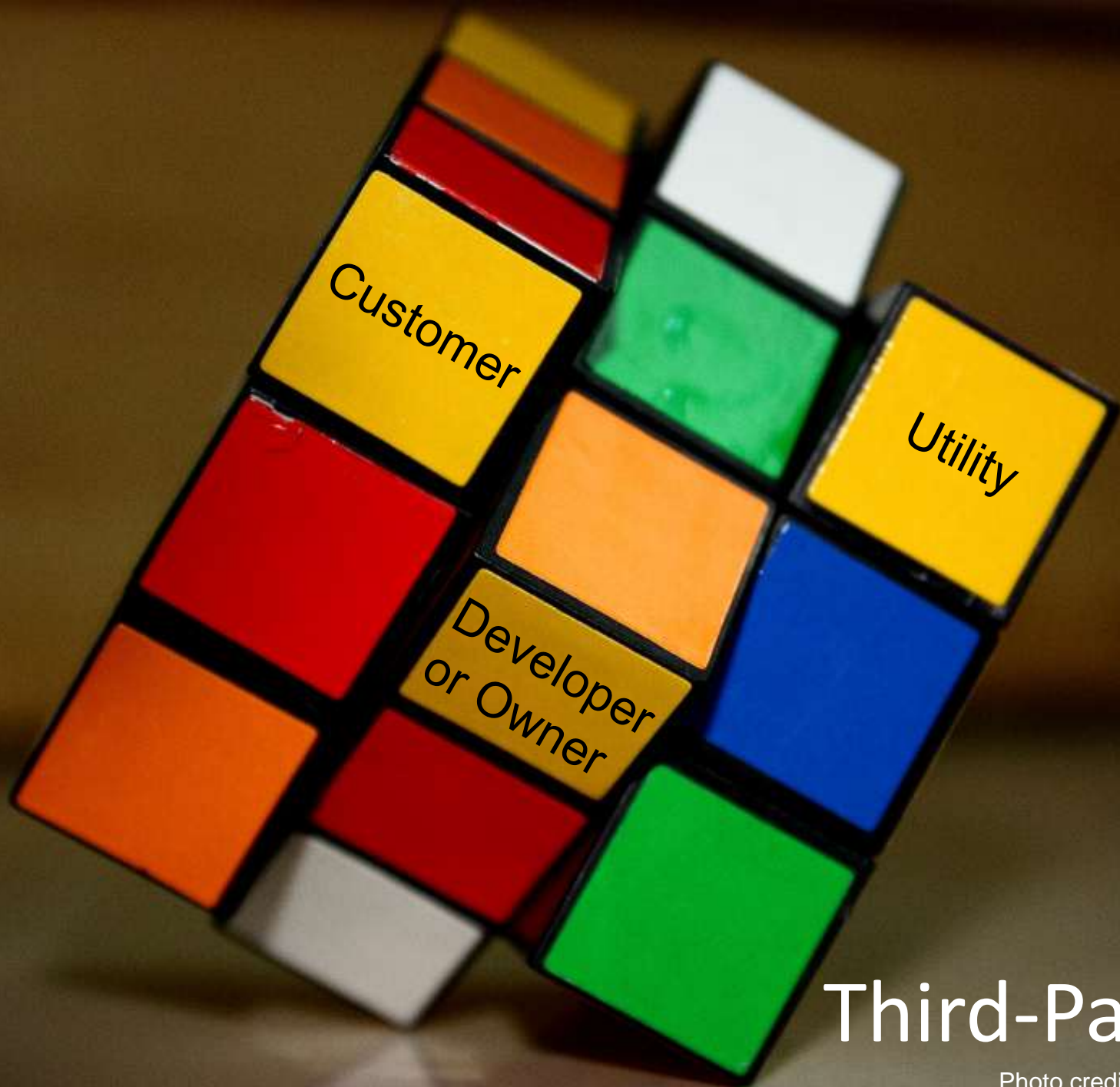
Property Assessed Clean Energy (PACE)

- Add special assessment to property tax bill to repay cost of solar system
- May be supported by bond issuance or other funding sources
- Authorized at state level, programs developed and implemented at local level
- FHFA issues exist with senior lien provisions



Third-Party Ownership

- 3rd Party Power Purchase Agreements
- Solar leases
- Property leases/hosting system

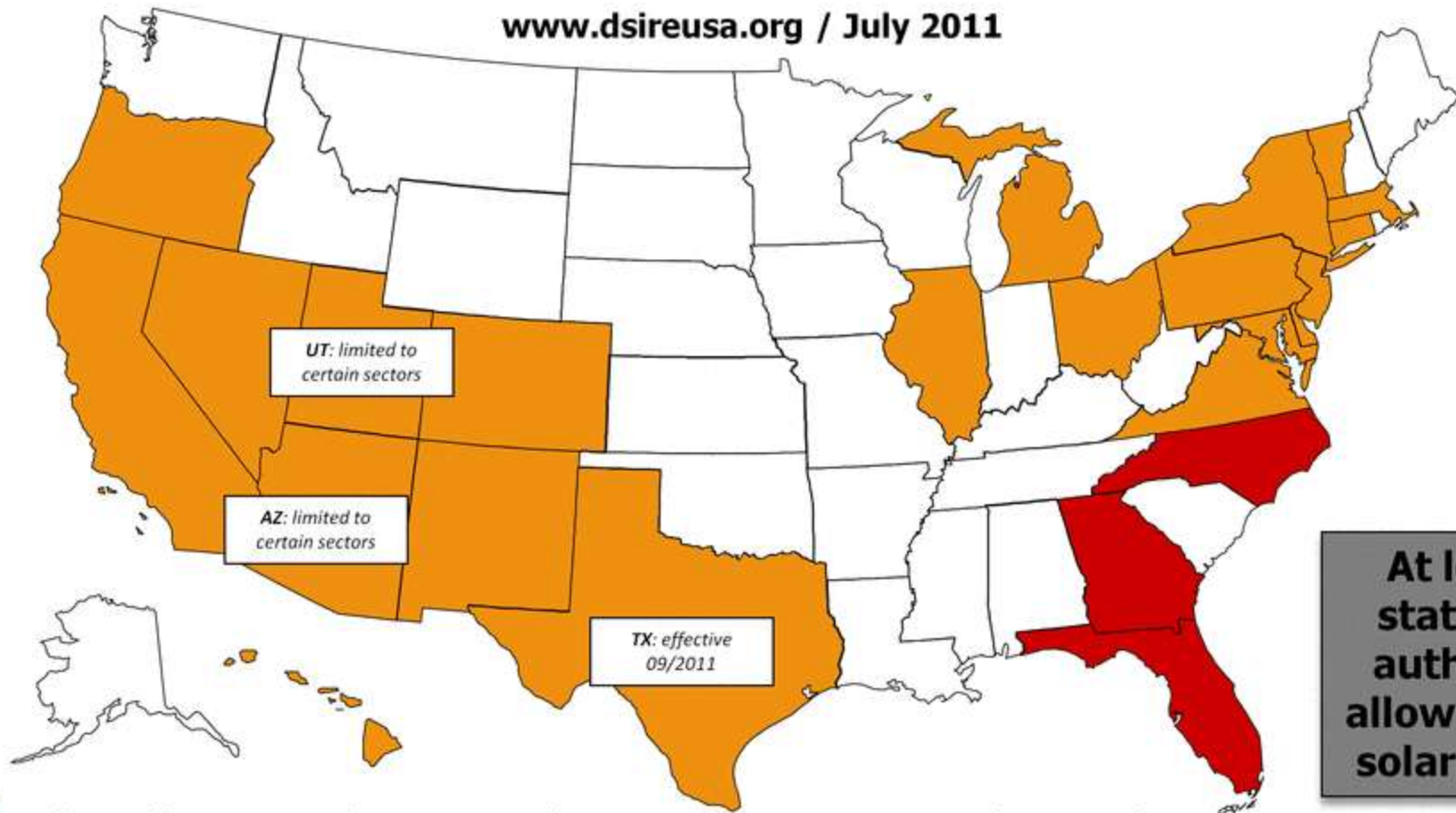


Third-Party PPAs

Photo credit: Siddy Lam

3rd-Party Solar PV Power Purchase Agreements (PPAs)

www.dsireusa.org / July 2011



- Authorized by state or otherwise currently in use, at least in certain jurisdictions within in the state
 - Apparently disallowed by state or otherwise restricted by legal barriers
 - Status unclear or unknown
- Puerto Rico

Note: This map is intended to serve as an unofficial guide; it does not constitute legal advice. Seek qualified legal expertise before making binding

Solar Leases

- Building owner leases solar system
- No sale of electricity
- Payment in \$/kW
- Developer takes tax incentives
- Building owner/system host uses output from system

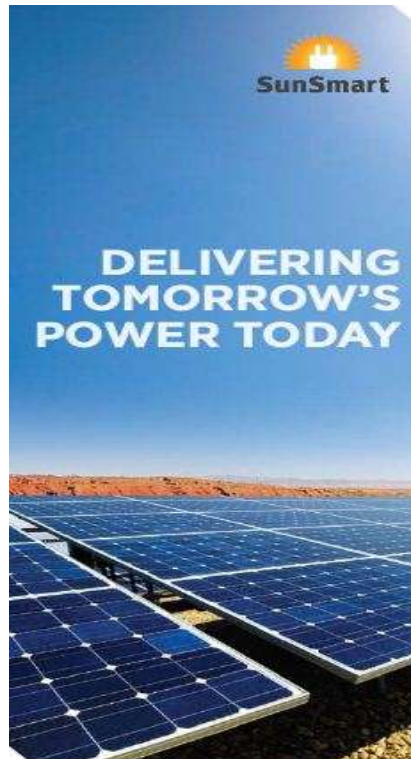
Property Leases

- Site owner leases site to third party solar developer
- Typical lease runs 20 years or longer
- Leasing company owns the equipment and energy produced, but pays site owner for use of the site (roof, land)
- Las Cruces, NM leased 240 acres to SunEdison = \$2.3 million for the city

Overview - Long-term Contracting in Houston and Texas

Innovative Financing Alternatives

Community Solar



- PV system provides power and/or financial benefit to multiple community members
- Helps overcome upfront cost barrier
- Utility collaboration is key
- Can be initiated by local government, utility, or business

SunSmart Community Solar Program St. George, Utah

Group Purchasing

solarize portland →



SunShares
Go Solar with Group Buying Power



georgetownenergy.com
HELPING WASHINGTON DC GO SOLAR

- Many people come together to purchase solar equipment and installation services in bulk
- Economies of scale = lower price per watt

Employee Group Purchasing



Technical
Expertise and
Assistance

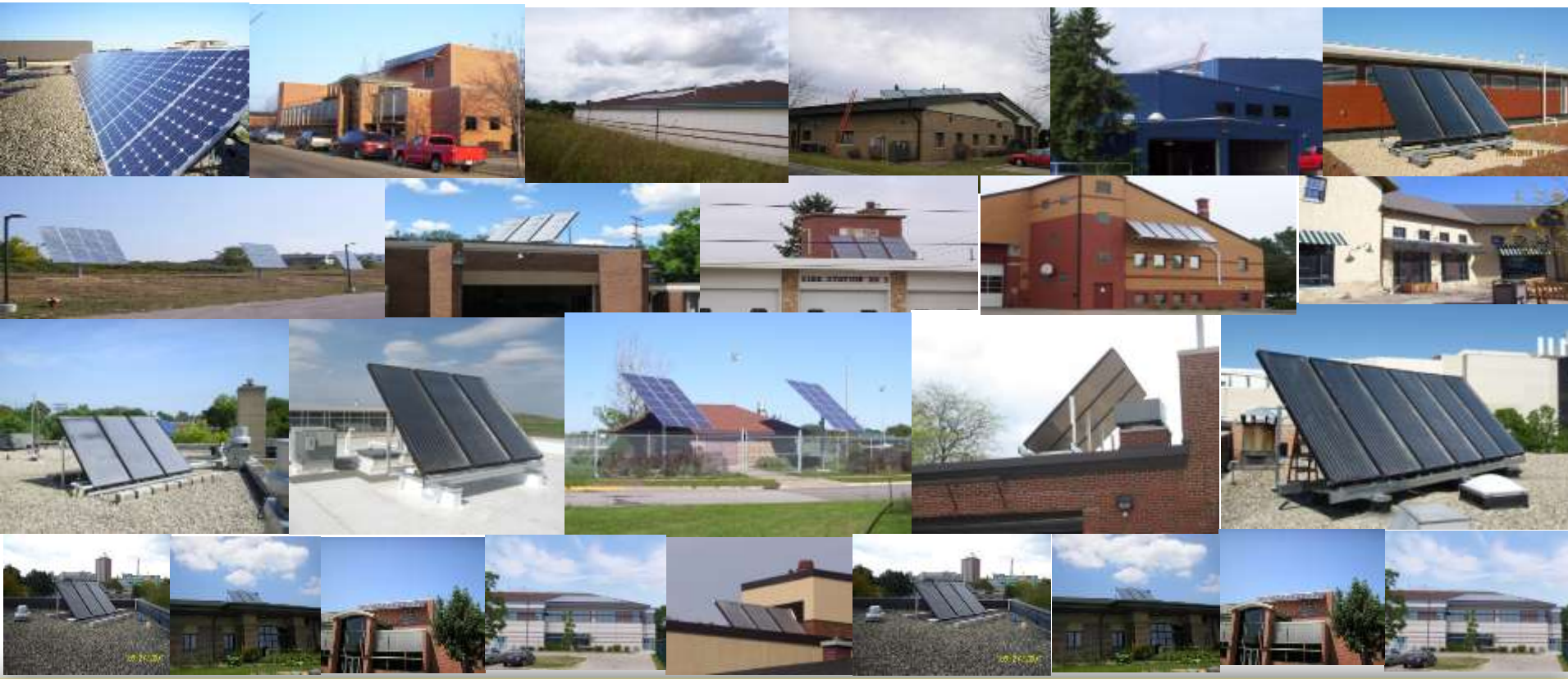
Accompanied
by low-interest
loans

130 Total
Participants

Diverse
Partnership

<http://www.baclimate.org/>

Installing Solar on Government Facilities



Steps for Installing Solar on a Local Government Facility

Educate
yourself

Assess the
site for
solar

Develop
RFP

Decide on
contractor

Make it
happen!

**Educate
yourself**

• Evaluate your solar potential

• Consider the type of solar you are interested in

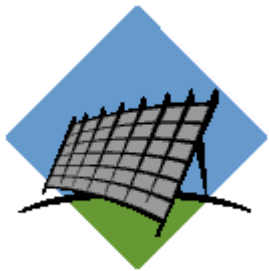
• Utilize DSIRE
www.dsireusa.org

Consider asking these questions:

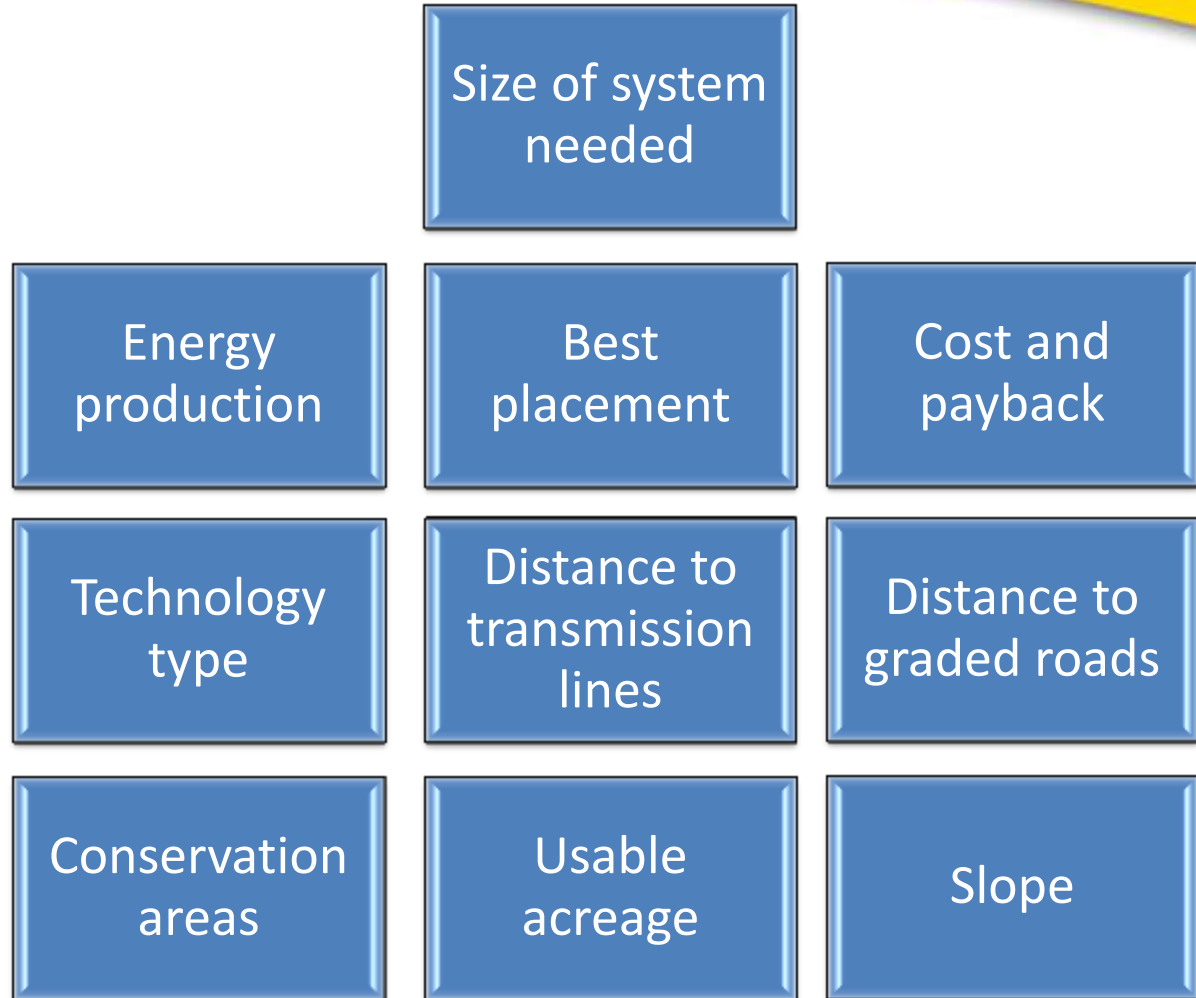
What resources and financing are available?	What products are available?
What are the potential locations for an installation?	How much does it cost to install the system?
Are building modifications necessary?	What are the local interconnection and net metering arrangements?
What is the customer currently paying for electricity?	How much electricity is the customer using, and when?

<http://solar.calfinder.com/blog/solar-information/10-free-online-solar-calculators/>

Assess the
site for
solar



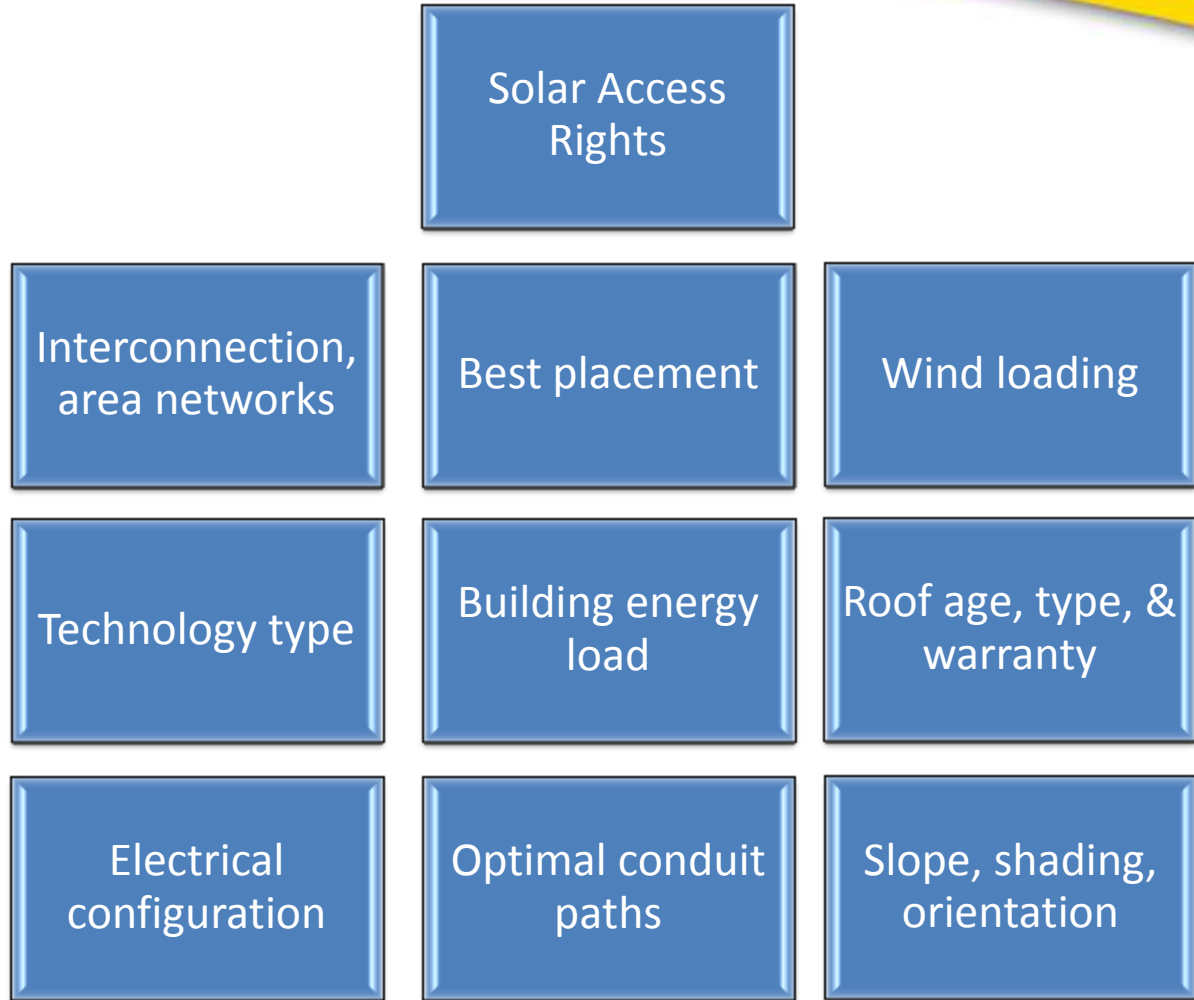
**on the
GROUND**



Assess the
site for
solar



on
BUILDINGS



Develop
RFP

Direct ownership
Third-party ownership

Start the RFP process
with the end in mind

Avoid five common pitfalls

RFP specifications are too restrictive or too unstructured

Competing measures of system efficiency

Finding sufficient number of qualified contractors (bidders)

Lack of effective O&M program

Lack of strong monitoring program

Develop
RFP

Consider Collaborative Procurement for Solar

Market-leading
contract terms

Early achievement
of GHG goals

50% savings in
administrative and
transaction costs

Energy cost
reductions of
10-15%

Reduced cost of PV
through volume
purchasing

Reduced vendor
costs through
economies of scale

Help smaller cities
leverage technical
expertise

Stabilized cost of
electrical energy

Stimulate creation
of local clean tech
jobs

Encourage use of
local technologies
and resources

See RFP



**Decide on
contractor**



Make it
happen!



Facilitate contractor's work
Contractor will generally apply for permits
and incentives

Initiate mechanism to track
system performance

Publicize completion

Celebrate!

Photo: Ribbon Cutting Ceremony at Frontier Fertilizer Superfund site



San Antonio International Airport 235 kw Solar Installation

10 Minute Break

Session III: *Understanding Utility Policies and Procedures*

Becky Campbell, SEPA bcampbell@solarelectricpower.org

A Utility Perspective on Solar

Benefits

- Potential for REC Benefits/Meet RPS Goals
- Peak Correlation Benefits*
- Rapidly Falling Prices

Concerns

- Reduced Customer Sales/Revenue*
- Subsidization of Non-participants *
- Recovery of Fixed Costs
- Islanding/Safety Concerns
- Billing or Metering Issues
- Variable Source of Energy
- New Staff Resources/Expertise

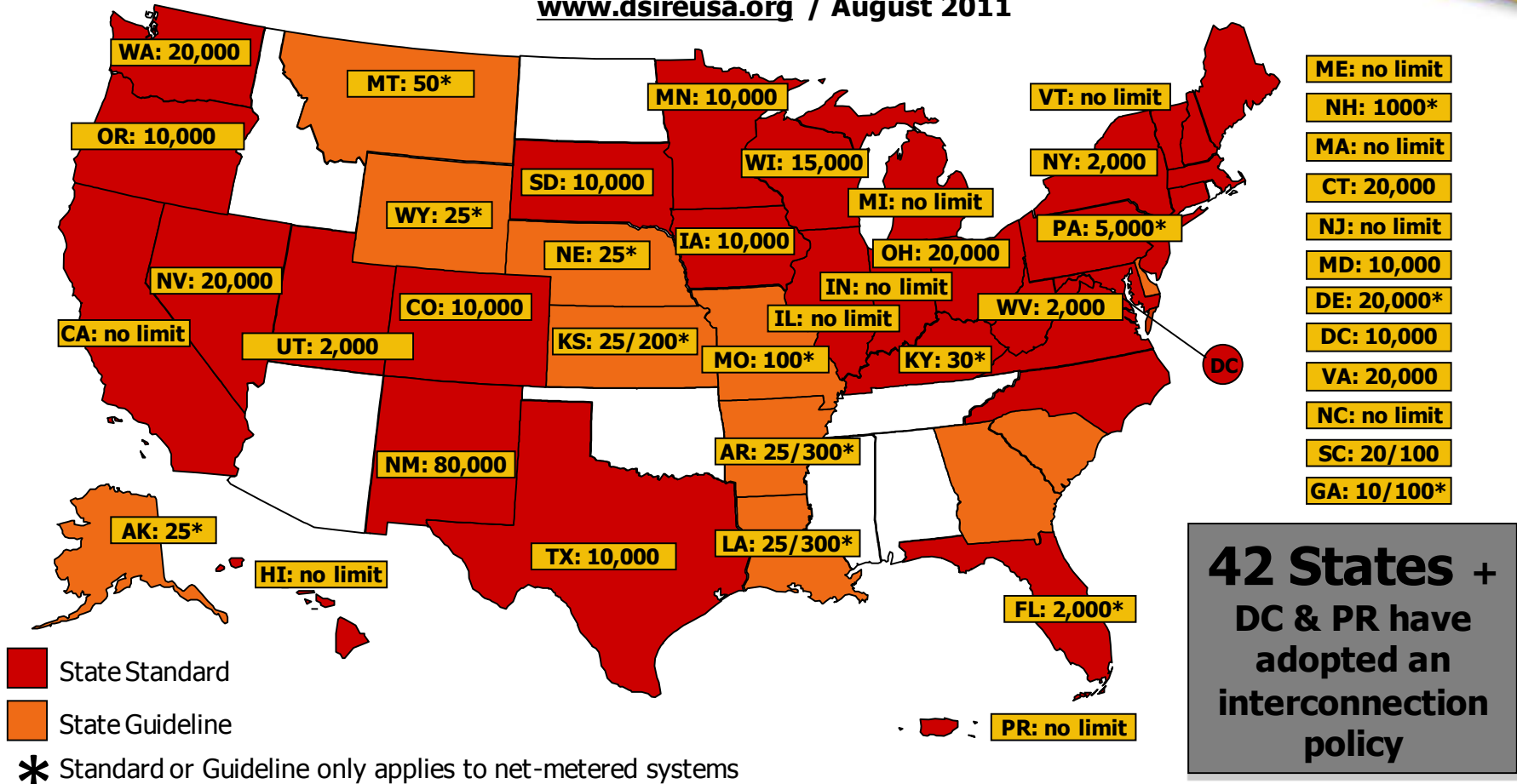
*(difficult to monetize)

Interconnection



Interconnection Policies

www.dsireusa.org / August 2011



Notes: Numbers indicate system capacity limit in kW. Some state limits vary by customer type (e.g., residential/non-residential). "No limit" means that there is no stated maximum size for individual systems. Other limits may apply. Generally, state interconnection standards apply only to investor-owned utilities.

Connecting to Distribution Lines



Use standard forms and agreements, with simplified versions for small systems

Screen applications based on degree of complexity and use expedited processes for those that pass technical screens.

A simplified procedure for small solar arrays covering most residential installations

A fast track procedure for systems up to 2 MW that allows interconnection without additional cost or delay if certain screens are met

New York City Case Study

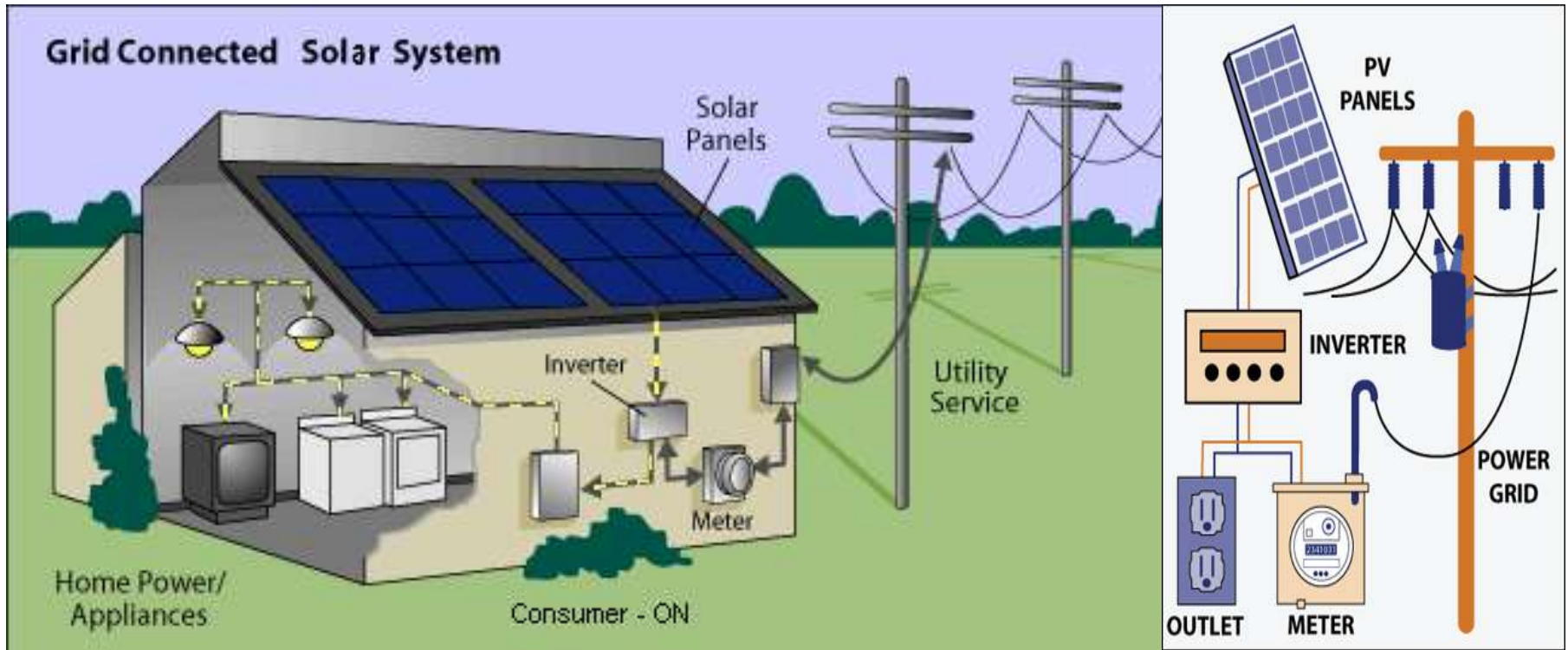
- Completed in-depth technical study of integrating solar on New York City's networked grid
- Resulted in the local utility (ConEdison) allowing PV systems less than 200 kilowatts to connect to networks without requiring a comprehensive engineering review



High Penetration Considerations

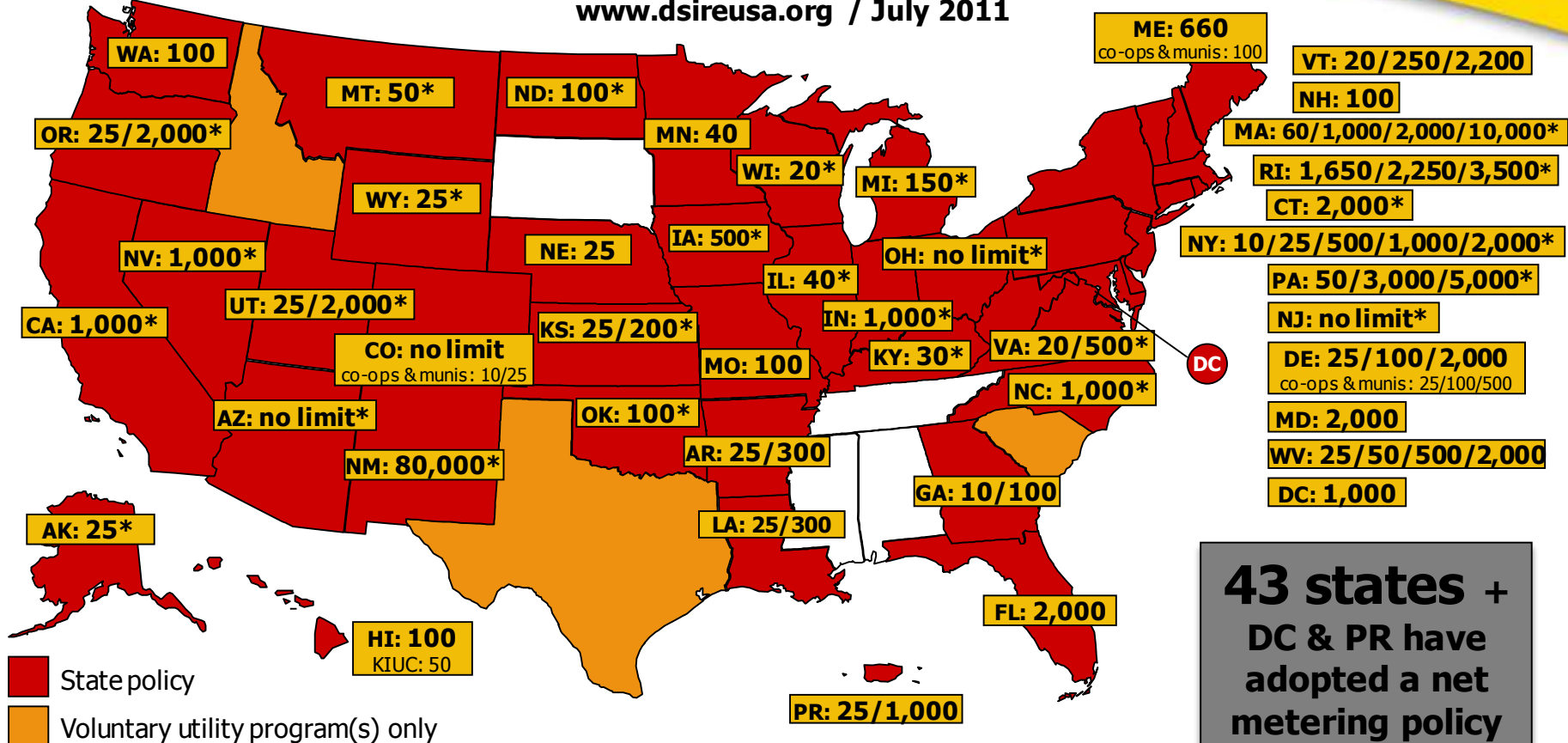
- For utilities in solar-active areas, individual distribution circuits can reach high levels of solar capacity relative to customer demand
- Generally circuits with greater than 15% penetration will need additional analysis; but every circuit is unique and penetration levels much greater than this are possible
- These circuits may require infrastructure upgrades, such as capacitor banks, new transformers, battery storage, or curtailment rules
- At the extreme, certain circuits may be capped against new solar installations to prevent circuit instability

Net Metering



Net Metering

www.dsireusa.org / July 2011



**43 states +
DC & PR have
adopted a net
metering policy**

* State policy applies to certain utility types only (e.g., investor-owned utilities)

Note: Numbers indicate individual system capacity limit in kW. Some limits vary by customer type, technology and/or application. Other limits might also apply.
This map generally does not address statutory changes until administrative rules have been adopted to implement such changes.

Net Metering Key Issues

- Project size cap (≥ 1 MW in 20 states)
- Program size cap (often % of utility peak load)
- Rollover of excess generation (i.e. monthly, annually)
- Standby charges and other fees
- Applicability (all utilities, all customers)
- Meter aggregation
- Virtual net metering

More about Texas...

In most states....

- Public utility commission (PUC)
 - Investor-owned utilities (IOUs)
 - Municipal utilities (Munis)
 - Cooperative utilities (Co-ops)

Texas....

- Public utility commission (PUC)
 - Electric Reliability Council of Texas (ERCOT)
 - Transmission and distribution utilities (TDUs) aka wires company
 - Retail electric provider (REPs)
 - Provider of last resort (POLRs)
 - Municipal utilities (Munis)
 - Cooperative utilities (Co-ops)

More about ERCOT...

- Operates the electric grid for 85% of Texas' customer electricity demands
 - ERCOT's grid resembles an island
 - FERC has limited to no jurisdiction over ERCOT

Interconnection and Net Metering in Texas

- Interconnections of up to 10 MWs handled by the transmission and distribution utility
- Define net metering....

Taking a Look at Three Texan Cities...



Interconnecting in San Antonio

- *Typical timeframe for interconnecting?*
 - Between application and utility decision is 6-10 business days
- *What are the fees?*
 - Fees waived for net metered customers
- *Is there a “fast track” option?*
 - No fast track option
- *Is IEEE 1547 required?*
 - Yes is it required

Net Metering in San Antonio

- *How is net metering structured?*
 - new meter and PV meter provided at no cost for net-metered PV systems, RECs are surrendered to the utility
- *How are customers compensated?*
 - Monthly, excess energy is not donated to the utility

Net Metering in San Antonio

- *What is the true-up period?*
 - Bill trued up monthly. Overproduction up to amount purchased from CPS Energy is netted, unless it's more than purchase – then it's purchased at the avoided cost of fuel.
- *Are all customers allowed to participate?*
 - No class restrictions
- *Is virtual net metering permitted?*
 - No

Interconnecting in Houston

- *Typical timeframe for interconnecting?*
 - Residential < 3 days
 - Commercial 11-30 days
- *What are the fees?*
 - Interconnection = \$0 - \$2,655
 - Permitting – Electrical = \$95 + Structural (varies)
- *Is there a “fast track” option? No*

Net Metering in Houston

- *How is net metering structured? How are customers compensated?*
- *Are all customers allowed to participate? Is virtual net metering permitted?*

Houston has a competitive market, so *it varies based on the Retail Energy Provider (REP).*

- PUC rules = customer must meter all electricity outflows and payment is at utility's avoided cost
- REP can provide “true net metering” if they choose.

Interconnecting in Austin

- *Typical timeframe for interconnecting?*
- *What are the fees?*
- *Is there a “fast track” option?*
- *Is IEEE 1547 required?*

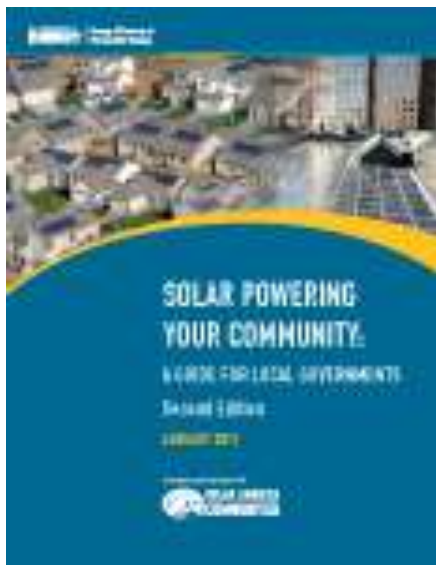
Net Metering in Austin

- *How is net metering structured?*
- *How are customers compensated?*
- *What is the true-up period?*
- *Are all customers allowed to participate?*
- *Is virtual net metering permitted?*

Panel Discussion

- *What are pub utilities/muni's doing to handle excess generation from renewables?*
- *In the competitive regions, how is the competition working out?*
- *Are customers being adequately compensated?*
- *Are there educational barriers for solar customers (in choosing the best REP)?*
- *How to have difficult conversations with your utility?*

Remember...



Solar Powering Your Community: A Guide for Local Governments (2011)

The U.S. Department of Energy developed this comprehensive resource to assist local governments and stakeholders in building sustainable local solar markets. The guide introduces a range of policy and program options that have been successfully field tested in cities and counties around the country.

Today's workshop presentation & notes will be posted here:

www.SolarAmericaCommunities.Energy.Gov/Resources

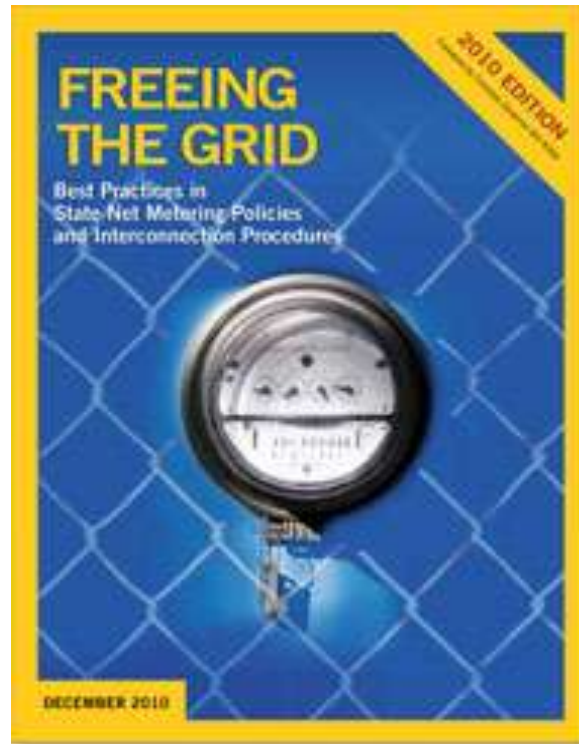
Questions/Comments

www.SolarAmericaCommunities.energy.gov
solar@icma.org

Today's workshop presentation & notes will be posted here:
www.SolarAmericaCommunities.Energy.Gov/Resources

Additional Resources

Interconnection and Net Metering Best Practices



<http://www.newenergychoices.org/uploads/FreeingTheGrid2010.pdf>

Resources from Solar ABCs

Solar America Board for Codes and Standards
Collaborate • Contribute • Transform

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2011 NEC and PV Requirements

The 2011 NEC Code has been published by the National Fire Protection Association (NFPA) and is now available. Anyone working with PV systems and equipment in either the manufacturing, design, installation, or inspection arenas should get a copy of the 2011 NEC and the 2011 NEC Handbook. The 2011 NEC Code and Handbook indicate the code changes by highlighting and the Handbook provides additional explanations. Read [highlights](#) and purchase the 2011 [Code](#) or [Handbook](#).



News & Events

03/03/2011 [PV Module Power Rating Policy Webinar](#)

02/08/2011 [Arc Fault Detection and Mitigation Webinar](#)

10/15/2010 [2010 Solar ABCs Annual Stakeholder Meeting](#)

[Learn More](#)

About Solar ABCs

The Solar America Board for Codes and Standards (Solar ABCs) is a collaborative effort among experts to formally gather and prioritize input from the broad spectrum of solar photovoltaic stakeholders including policy makers, manufacturers, installers, and consumers.

The Solar ABCs is a collaborative effort funded by the U.S. Department of Energy that dedicates experts to transforming solar markets by improving building codes, utility interconnection procedures, and product standards, reliability, and safety.

[Learn More](#)

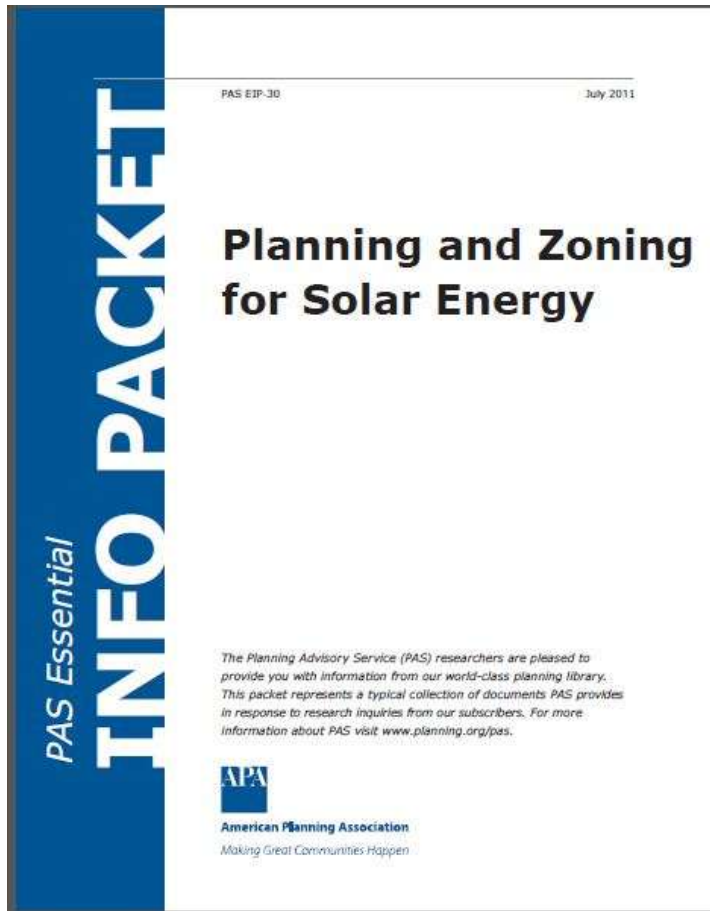
Resources

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Current Publications

- [Sustainable, Multi-Sequence Market Design for Distributed Solar Photovoltaics](#)
- [Solar ABCs Updated Recommendations for Federal Energy Regulatory Commission Small Generator Interconnection Procedures Screens](#)
- [Flammability Testing of Standard Roofing Products in the Presence of Stand-off Mounted PV Modules](#)
- [Wind Load Calculations for PV Arrays](#) [More Publications](#)

All reports are available at www.SolarABCs.org

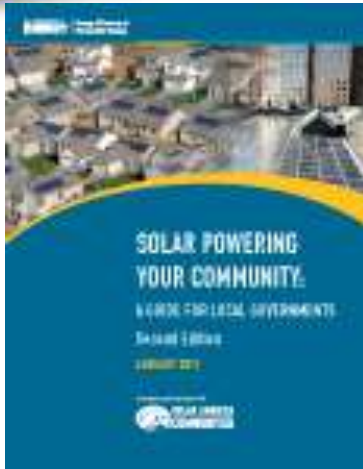


PAS Essential Info Packet: Planning and Zoning for Solar Energy (July, 2011)

This Essential Info Packet provides a number of articles and guidebooks to bring planners up to speed on the current state of solar and help them plan for solar in their communities. A sampling of solar provisions in comprehensive plans provides guidance for integrating this important element into communities' guiding policy documents, and planners can draw on the sample ordinances on the various aspects of solar energy described above from municipalities across the country to update their codes or add solar provisions for the first time.

Published by APA:

<http://www.planning.org/pas/infopackets/open/eip30.htm>



Solar Powering Your Community: A Guide for Local Governments (2011)

The U.S. Department of Energy developed this comprehensive resource to assist local governments and stakeholders in building sustainable local solar markets. The guide introduces a range of policy and program options that have been successfully field tested in cities and counties around the country. Published by U.S. Department of Energy:

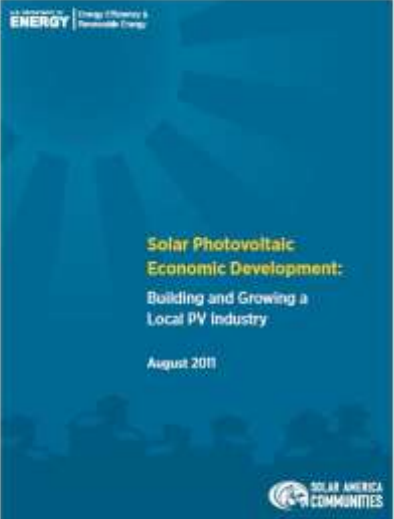
http://solaramericacommunities.energy.gov/resources/guide_for_local_governments/



National Solar Jobs Census 2010: A Review of the US Solar Workforce

This first-of-its-kind study produced by The Solar Foundation directly quantifies solar jobs across the value chain. The Census found that as of August 2010 there are 93,000 solar workers with over half of all employers expecting to add jobs within the next 12 months, representing a job growth rate of 26%. The Census looks at 31 distinct occupations.

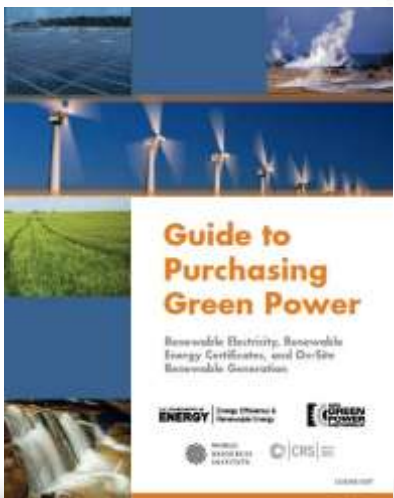
Published by The Solar Foundation: www.TheSolarFoundation.org



Solar Photovoltaic Economic Development: Building and Growing a Local PV Industry (August 2011)

This report is intended to be an introductory guide for local economic development offices to set informed recruitment targets for renewable energy. It was developed to help communities evaluate opportunities in the photovoltaic (PV) industry and develop a strategic approach appropriate to a specific community.

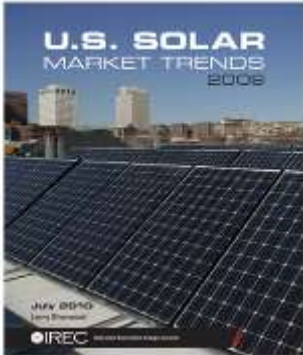
Prepared for the U.S. Department of Energy Solar Energy Technologies Program by CH2MHill. www1.eere.energy.gov/solar/pdfs/51190.pdf



Guide to Purchasing Green Power

This guide provides information about buying green power. It includes information on the different types of green power products and the benefits of green power purchasing, including how to capture the greatest benefit from your purchase. The Guide is the product of a cooperative effort between EPA, the U.S. Department of Energy (DOE), the World Resources Institute, and the Center for Resource Solutions (CRS).

www.epa.gov/grnpower/documents/purchasing_guide_for_web.pdf



The number of new grid-connected PV installations grew by 40% in 2009 compared with the number installed in 2008. The two largest PV systems installed in 2009 together accounted for 12% of the annual installed PV capacity. In IREC's ***U.S. Solar Market Trends*** report (2010), primary author, Larry Sherwood, provides public data on U.S. solar installations by technology, state and market sector.

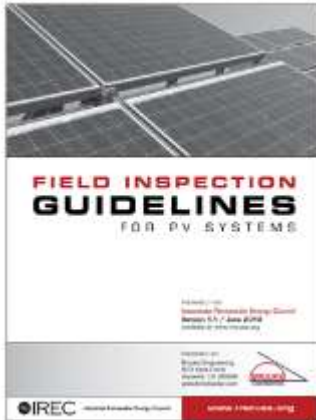
Published by IREC: <http://irecusa.org/irec-programs/publications-reports/>



IREC's 2010 Updates & Trends Report

Released at IREC's Annual Meeting in Los Angeles on October 11th, here's the 2010 collection of updates and trends covering regulatory issues, policies and incentives, installation and market data, and workforce development and training from IREC's team.

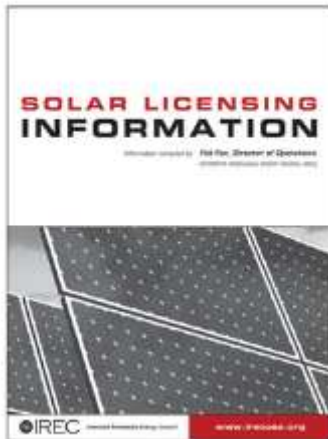
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2010 Field Inspection Guidelines for PV Systems

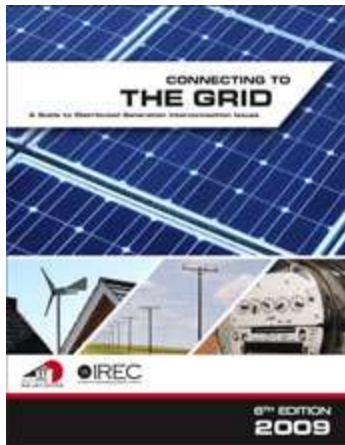
According to its author, Bill Brooks of Brooks Solar, the intent of the 2010 Guidelines is to consolidate the most important aspects of a field inspection into a simple process that can be performed in as little as 15 minutes. Explanation and illustrative pictures are provided to instruct the inspector on the specific details of each step. The 2010 edition of the Guidelines is an update from the 2006 edition.

Published by IREC: <http://irecusa.org/irec-programs/publications-reports/>



IREC has created a **Solar Licensing Database** as a resource for policy makers, practitioners, consumers, and anyone else looking for solar licensing information in the U.S. The state-by-state information offers a handy comparison for reviewing the different approaches across state lines, and identifies various practices for regulating the solar installation industry.

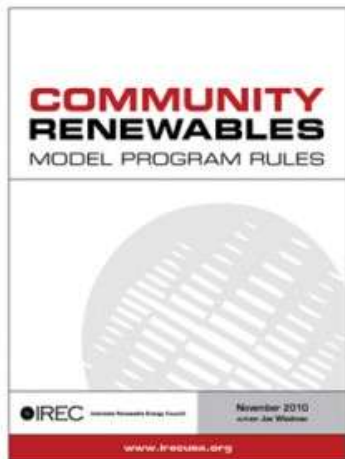
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Connecting to the Grid Guide 6th Edition (2009)

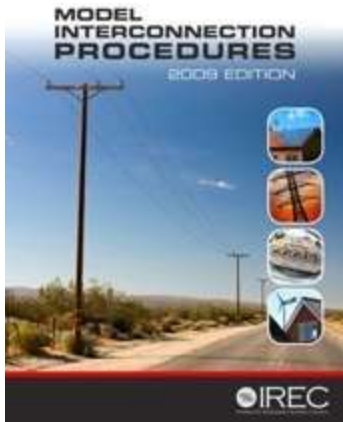
Net metering and interconnection policies are essential pieces of a supportive state-level regulatory policy framework addressing two important aspects of renewable energy development: whether a customer investing in renewable generation can unlock the full value of his or her investment; and how that customer will interconnect his or her generation system to the distribution grid. This guide introduces readers to the issues surrounding policy and technical considerations of grid-integrated, renewable energy development.

Published by IREC: <http://irecusa.org/irec-programs/publications-reports/>



Based on best practices, **Model Rules for Community Renewables (2010)** are presented to facilitate co-investment in local renewable power facilities. Interest in community solar and wind initiatives stems from recognition that many utility customers are not able to host an on-site renewable power system, yet they would like to invest in local renewable generation. Examples include occupants of multi-tenant residential and commercial buildings, and properties not conducive to an on-site system, due to shading or structural restrictions.

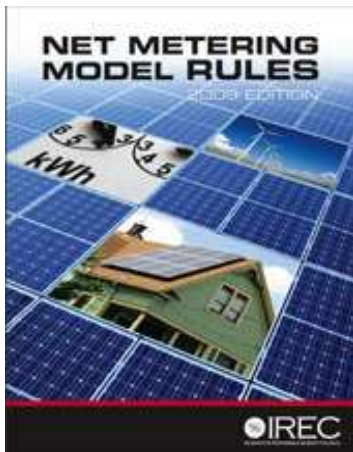
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2009 Model Interconnection Procedures.

IREC first developed model interconnection procedures in 2005 in an effort to capture emerging best practices in this vital area. Since that time, IREC has been an active participant in dozens of state utility commission rulemakings that have focused on the development of interconnection procedures. These updated procedures also include footnotes that explain key provisions and provide information on alternatives that are being practiced in some states.

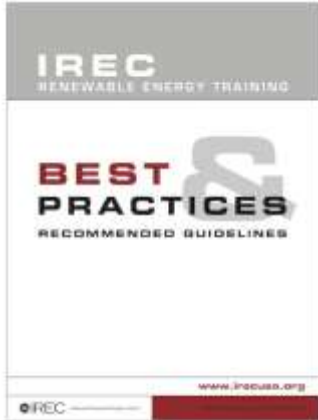
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2009 IREC Model Net Metering Rules

On significant points such as size of systems eligible for net metering, program capacity caps, and treatment of annual excess generation, there has been broad variation between states. In an effort to capture this variation, IREC's model rules now include footnotes that discuss the various approaches states have taken on these issues.

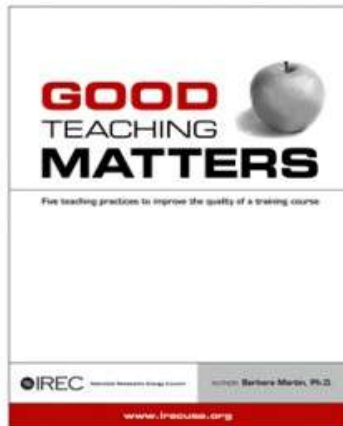
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Best Practices & Recommended Guidelines for Renewable Energy Training (2010)

The 26-page document covers recommended principles for training; reviews industry-approved job/task analyses; discusses types of educational programs; walks through the essential steps of designing a training course; offers a checklist for assessing learning outcomes; looks at certification and accreditation; and lists resources to assist in training.

Published by IREC: <http://irecusa.org/irec-programs/publications-reports/>



Good Teaching Matters (2010) discusses five important teaching practices that can improve the quality of a training course. Written by Dr. Barbara Martin, who specializes in instructional design, the five practices include: know your students; write learning objectives; include practice and feedback in the training; create simple Power Point slides; and design test and evaluation measures that promote transfer.

Published by IREC: <http://irecusa.org/irec-programs/publications-reports/>



U.S. Solar Energy Trade Assessment 2010 (2010)

This study shows that U.S. solar installations created \$3.6 billion in direct value to the global economy in 2009. Of that, nearly 74 percent, or \$2.6 billion, directly benefited the U.S. economy. It also shows that the U.S. was a net exporter of solar energy products in 2009, led by the \$1.1 billion in exports of polysilicon, the primary feedstock in most PV cells.

Published by SEIA: www.seia.org/cs/news_detail?pressrelease.id=1144



U.S. Solar Market Insight 2010 Year in Review (2011)

The quarterly SEIA/GTM Research U.S. Solar Market Insight™ report is a complete account of trends in U.S. photovoltaic (PV), concentrating solar power (CSP), and solar heating and cooling (SHC) markets. Each quarter, SEIA and GTM Research provide the most valuable current information on the U.S. solar market.

Published by SEIA: www.seia.org/galleries/pdf/SMI-YIR-2010-ES.pdf

