

# Efficient Solar Permitting for Your Jurisdiction: Westchester County, NY



Powered by

**SunShot**

U.S. Department of Energy

# About the SunShot Solar Outreach Partnership



The SunShot Solar Outreach Partnership (SolarOPs) is a U.S. Department of Energy (DOE) program designed to increase the use and integration of solar energy in communities across the US.

# Welcome from our Westchester County Partners



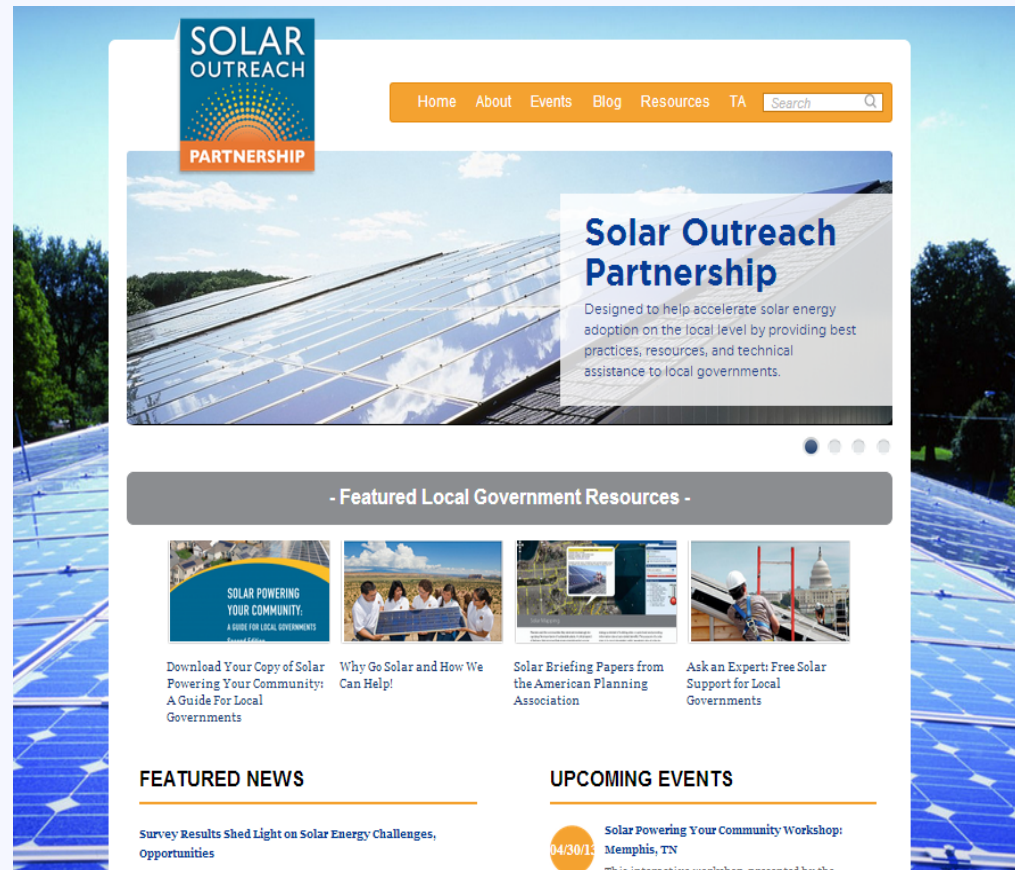
<http://www.law.pace.edu/landuse>

<http://www.sweac.org/> <http://www.nweac.org/>

# About the SunShot Solar Outreach Partnership

## Resources

- Workshops
- Webinars
- Tools & Resources
- Technical Assistance
- Website



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

# About IREC

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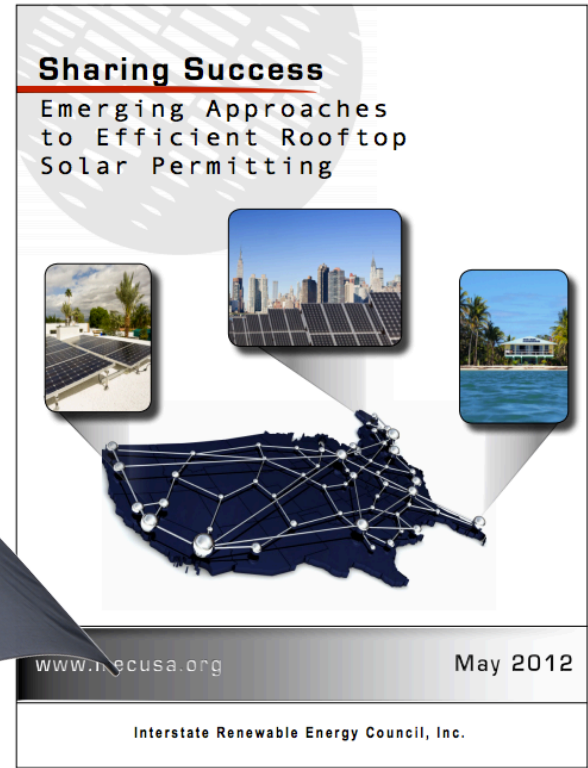
The Interstate Renewable Energy Council, Inc. (IREC) enables greater use of clean energy in a sustainable way by:

1. Introducing regulatory policy innovations that empower consumers and support a transition to a sustainable energy future;
2. Removing technical constraints to distributed energy resource integration; and
3. Developing and coordinating national strategies and policy guidance to provide consistency on these policies centered on best practices and solid research.

The scope of IREC's work includes:

- **Reducing the time and cost for local authorities to permit PV systems;**
- Updating interconnection processes to facilitate deployment of distributed energy resources under high deployment scenarios;
- Expanding programs that facilitate consumers' ability to host a renewable energy system to directly self-supply energy needs or sell energy;
- And more...

# Permitting Umbrella



# Agenda—May 1, 2013

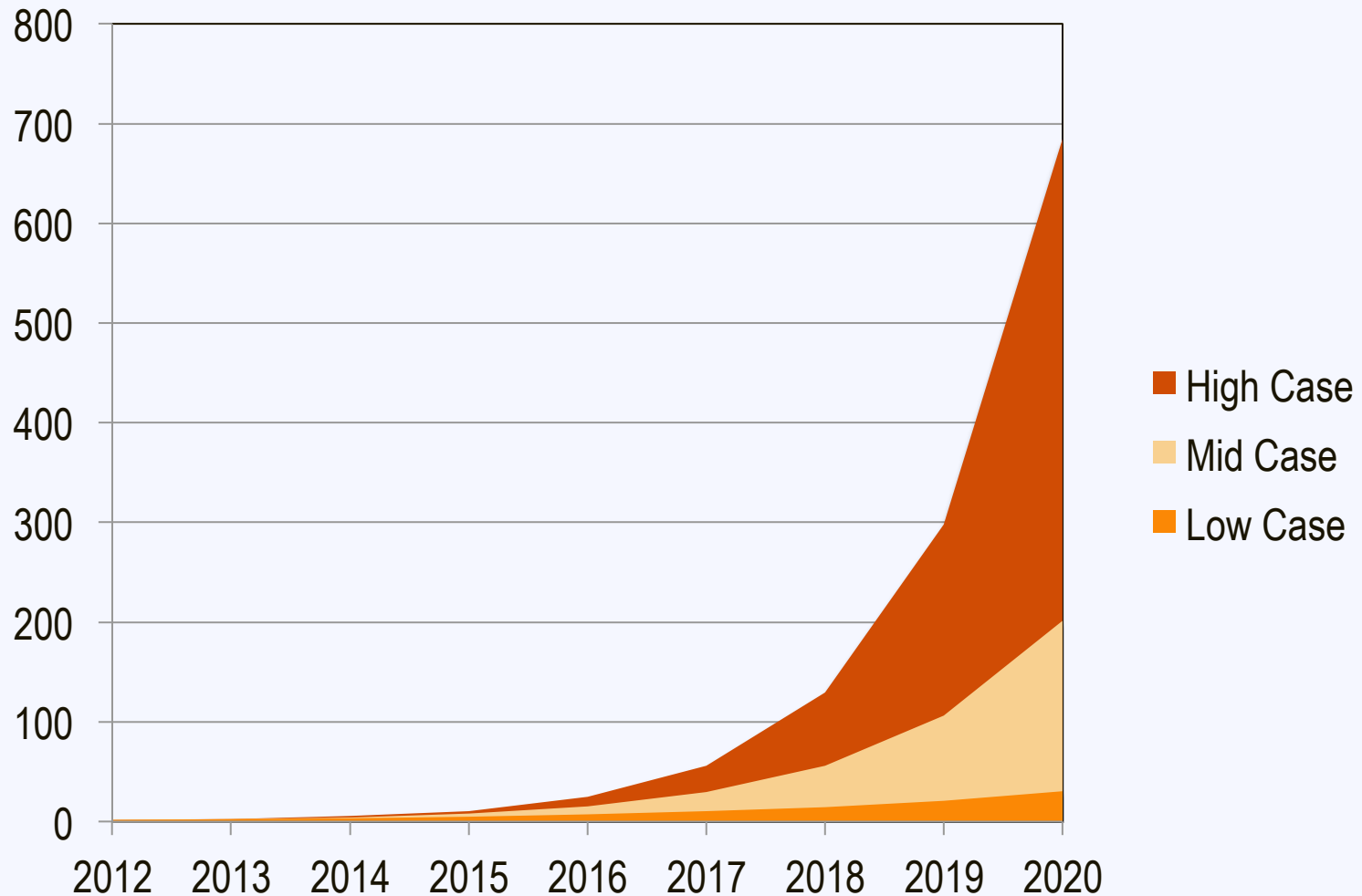
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- |               |  |
|---------------|--|
| 9:00 – 9:30   | Introduction to Permitting   |
| 9:30 – 10:00  | Identifying Goals: Why permitting reform?  |
| 10:00 – 11:00 | Identifying Successful Approaches Part I:<br>Pre-application and application submittal |
| 11:00 – 11:15 | <i>Break</i>   |
| 11:15 – 12:15 | Identifying Successful Approaches Part II:<br>Application review and inspections       |
| 12:15 – 12:30 | Wrap-up  |

# Solar Permitting: The Case for Process Reform

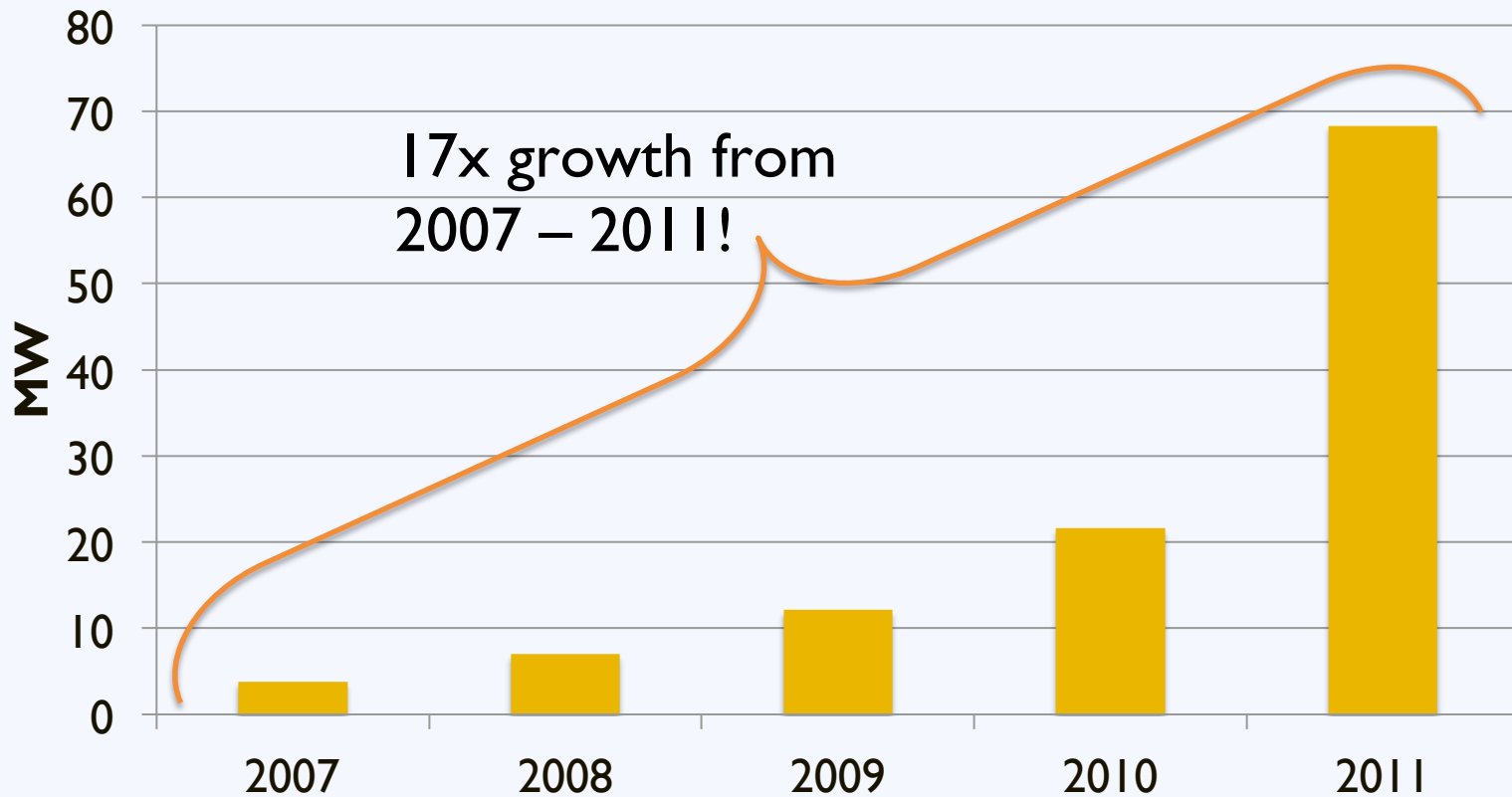


# U.S. Solar Projections to 2020 (GW)



# New York Solar Growth to Date

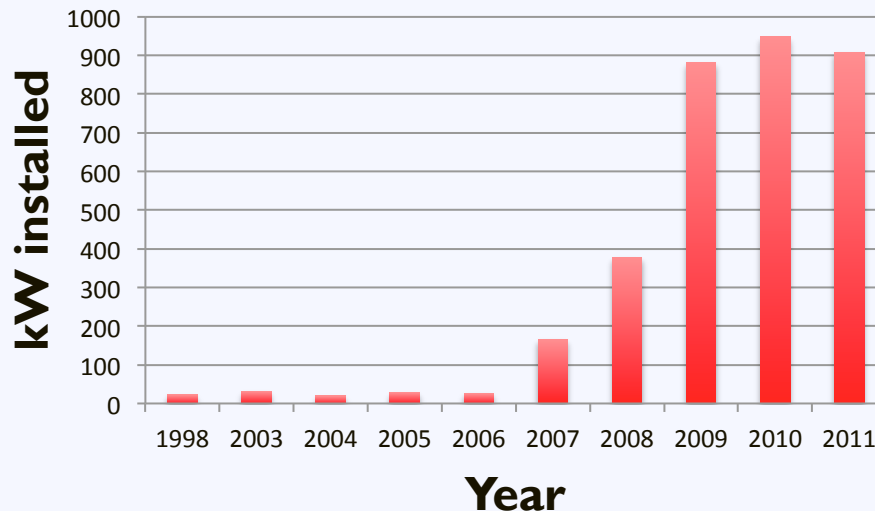
## NY Annual Installed Solar Capacity



Cumulative MW installed in 2011 = 124 MW

# Solar in Westchester County

- 341 solar PV installations to date—  
second highest county in the State
  - New York total = 4617
- Majority of the systems are 10 kW or smaller



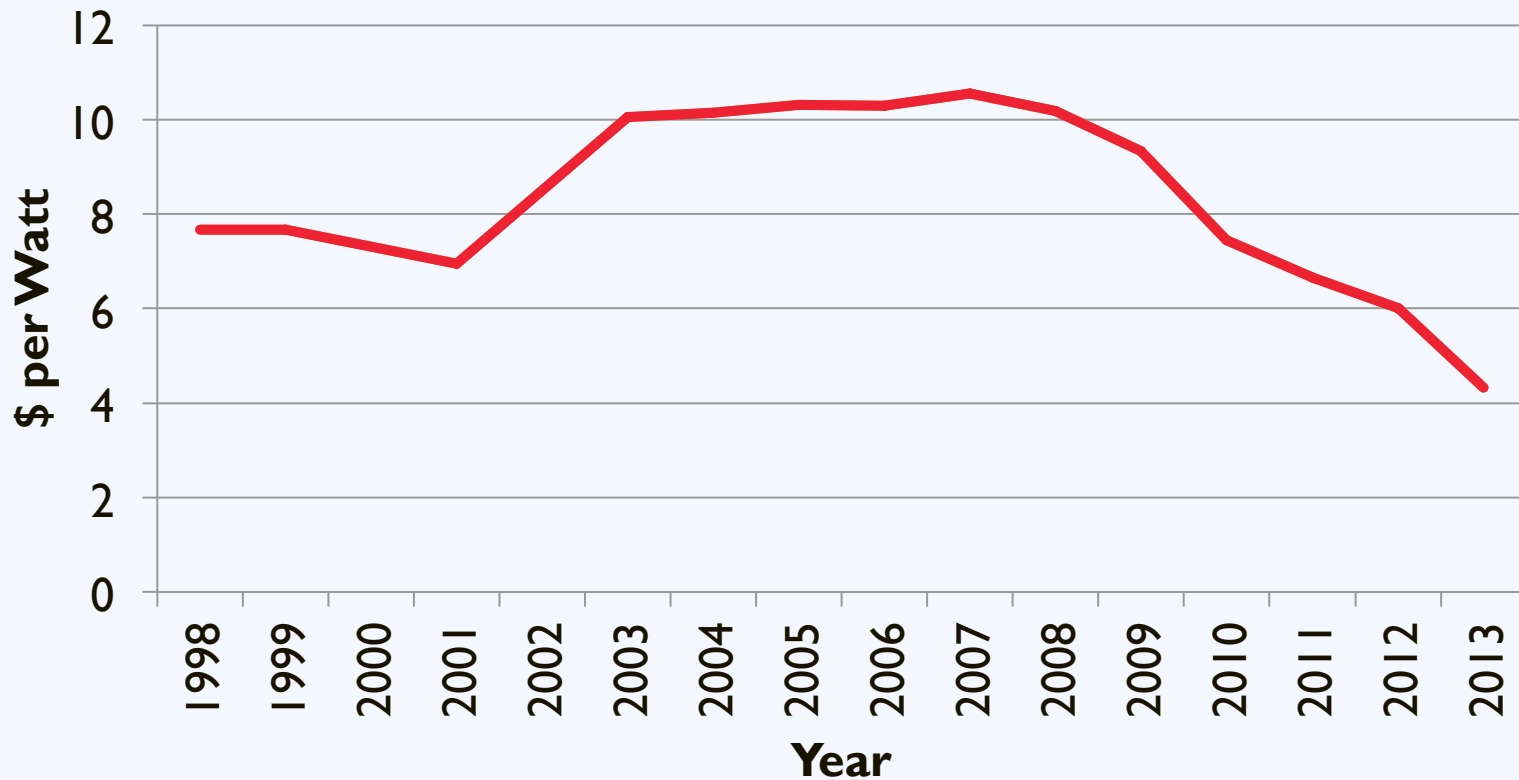
3.75 MW total  
installed capacity

# New York Wants More Solar

- NY-SUN—in 2012, install 2x the customer-sited PV capacity added during 2011; and quadruple that amount in 2013
  - \$800 million to be invested through 2015
  - To be extended through 2023, with a goal of 2200 MW of solar? (NY Solar Bill, A.5060/S.2522)
- NYSERDA customer-sited tier funding for solar PV = \$37.5 million annually 2013-2015
  - Cumulative goal by 2015 = 157 MW solar PV

# New York Declining Solar Costs

## NY Average Cost of Solar



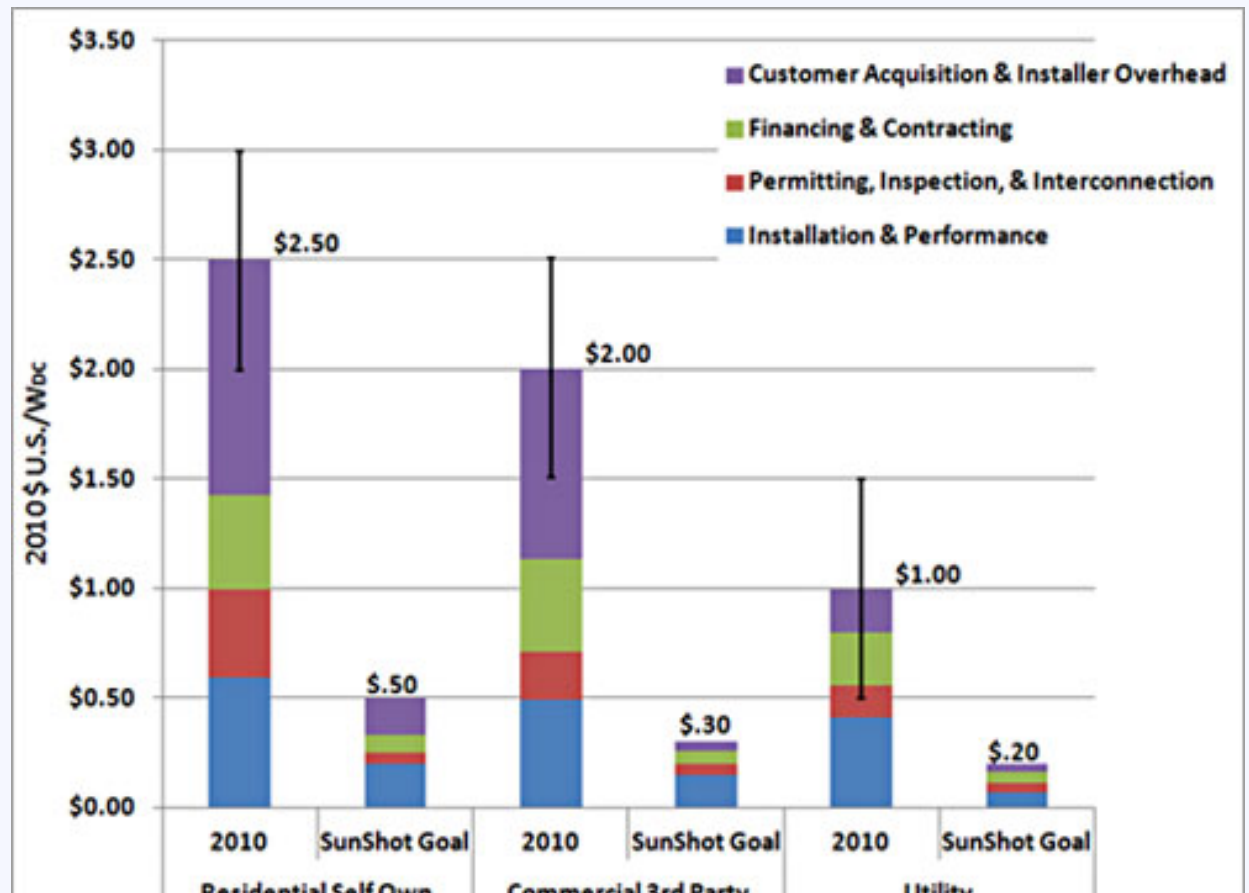
In Westchester County, systems up to 10 kW  
cost between \$8 – 11 per Watt

# Solar “Soft Costs”

## U.S. Average Total Soft Costs, by System Size and Type

### U.S. Total Costs (2011)

- Median price for res. PV (<10 kW) = \$6.13
- Median price for comm. PV (>100 kW) = \$4.87



# Identifying Challenges

## Solar Developer Perspective:

- Unclear or inconsistent requirements
- Lengthy application review process, even for small projects
- High or inconsistent fees
- Multiple inspections and long time windows
- Lack of familiarity with solar

Added together, these cost a lot of money!

### THE IMPACT OF LOCAL PERMITTING ON THE COST OF SOLAR POWER

How a federal effort to simplify processes can make solar affordable for 50% of American homes

January 2011

Endorsed by:

Altiris Renewables	RevoluSun
American Solar Electric	Sierra Club
Acro Energy	SolarTech
Greenspring Energy	SolSource
groSolar	Sullivan Solar Power
HeliPower	Sun Charret Solar
Mainstream Energy	Sunetric
Mercury Solar Systems	Sunlight Solar Energy
Namaste Solar	SunTrek Solar
PetersenDean	Trinity Solar
Real Goods Solar	Verengo Solar Plus
REC Solar	The Vote Solar Initiative



# Identifying Challenges

## Local Government Perspective:

- Solar permitting is just a piece of everything else local governments do
- Many local governments are resource-constrained
- Inexperienced installers submit incomplete applications
- Installations do not match design drawings
- Importance of balancing government's needs and demands with encouraging solar energy and economic development





# Permitting Costs Matter

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- Local permitting and inspection add an average of about \$0.50 per watt, or \$2,516 per residential install
- Inefficient processes can overwhelm local departments and consume resources that could be used elsewhere
- An efficient process can promote economic development and energy savings in the community

# Activity: Getting to know you

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1. Name

2. Municipality, Jurisdiction or Other Affiliation

3. Position

# Identifying Goals: Why Permitting Reform?

# Goals for Permitting Reform

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1. Permitting information is available and easily accessible online at a single location
2. Fair, flat permit fees that reflect the time needed to process permit applications
3. Expedited review for simple systems
4. Electronic and online permit processing
5. Just one trip to the permit office

# Goals for Permitting Reform

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6. Standard certification for installers (NABCEP)
7. Permitting staff trained in solar—plan check and review staff as well as inspectors
8. Only one inspection—eliminate unnecessary review and inspections
9. Reduced inspection time windows

# Identifying Successful Approaches

# Regional Approaches to Permitting Reform in New York

- **Long Island Unified Solar Permitting Initiative (LIUSPI)**
  - Collaborative and voluntary approach organized by LIPA to achieve regional standardization of residential solar permit review (90% of systems)
  - Uniform application, 14-day turn around, ≤ \$50 application fee
  - Cash grants to early adopters
- **NYSERDA**
  - Standardized forms for incentive process
- **ConEd et al.** – 100 Days of Solar (NYC)
- **CUNY** – NY State Unified Solar Permit Initiative

# Other Regional Approaches to Permitting Reform

- **East Bay Green Corridor**—Regional Solar Policy Initiative [www.ebgreencorridor.org](http://www.ebgreencorridor.org)
  - Standardized permitting process in Alameda County, CA
- **Solar Sonoma County (CA)**—Residential Rooftop PV Permit and Guidelines for Sonoma County <http://solarsonomacounty.org>
- **Pima County, AZ**—standard solar permitting process adopted by all jurisdictions



# Poll

Do you stay in touch with other jurisdictions regarding solar permitting? **Often, occasionally or never?**

# Implementing Improvements: Key Principles

- **Responsibility** for change should be shared between permitting authorities and the solar industry.
- Changes to permitting policies should **benefit** municipal governments as well as solar installers and their customers.

# Overview of the Permitting Process

**Pre-Application** – access to information on solar permit requirements and procedures



**Application Submittal and Review** – application forms, fees and review



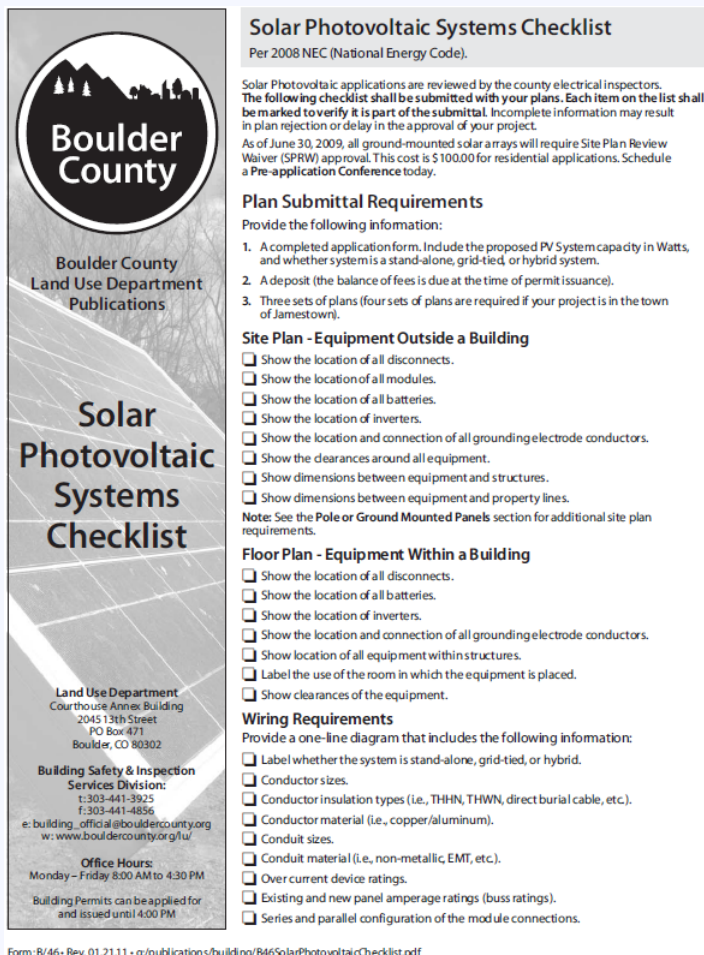
**Inspections** – scheduling inspections and inspector training

# Pre-Application Materials:

## How they can help

- Reduces number of individualized questions staff has to field
- Increases amount of applications submitted correctly and completely the first time
- Puts everyone on the same page with respect to requirements - reducing conflict
- Can help manage expectations
- Facilitates solar expansion in your community

# Application Checklists



**Boulder County**  
Boulder County Land Use Department Publications

## Solar Photovoltaic Systems Checklist

Land Use Department  
Courthouse Annex Building  
2045 13th Street  
PO Box 471  
Boulder, CO 80302

Building Safety & Inspection Services Division  
t: 303-441-3925  
f: 303-441-4856  
e: building\_official@bouldercounty.org  
w: www.bouldercounty.org

Office Hours:  
Monday - Friday 8:00 AM to 4:30 PM

Building Permits can be applied for and issued until 4:00 PM

### Solar Photovoltaic Systems Checklist

Per 2008 NEC (National Energy Code).

Solar Photovoltaic applications are reviewed by the county electrical inspectors. The following checklist shall be submitted with your plans. Each item on the list shall be marked to verify it is part of the submittal. Incomplete information may result in plan rejection or delay in the approval of your project.

As of June 30, 2009, all ground-mounted solar arrays will require Site Plan Review Waiver (SPRW) approval. This cost is \$100.00 for residential applications. Schedule a Pre-application Conference today.

#### Plan Submittal Requirements

Provide the following information:

1. A completed application form. Include the proposed PV System capacity in Watts, and whether system is a stand-alone, grid-tied, or hybrid system.
2. A deposit (the balance of fees is due at the time of permit issuance).
3. Three sets of plans (four sets of plans are required if your project is in the town of Jamestown).

#### Site Plan - Equipment Outside a Building

- Show the location of all disconnects.
- Show the location of all modules.
- Show the location of all batteries.
- Show the location of inverters.
- Show the location and connection of all grounding electrode conductors.
- Show the clearances around all equipment.
- Show dimensions between equipment and structures.
- Show dimensions between equipment and property lines.

Note: See the Pole or Ground Mounted Panels section for additional site plan requirements.

#### Floor Plan - Equipment Within a Building

- Show the location of all disconnects.
- Show the location of all batteries.
- Show the location of inverters.
- Show the location and connection of all grounding electrode conductors.
- Show location of all equipment within structures.
- Label the use of the room in which the equipment is placed.
- Show clearances of the equipment.

#### Wiring Requirements

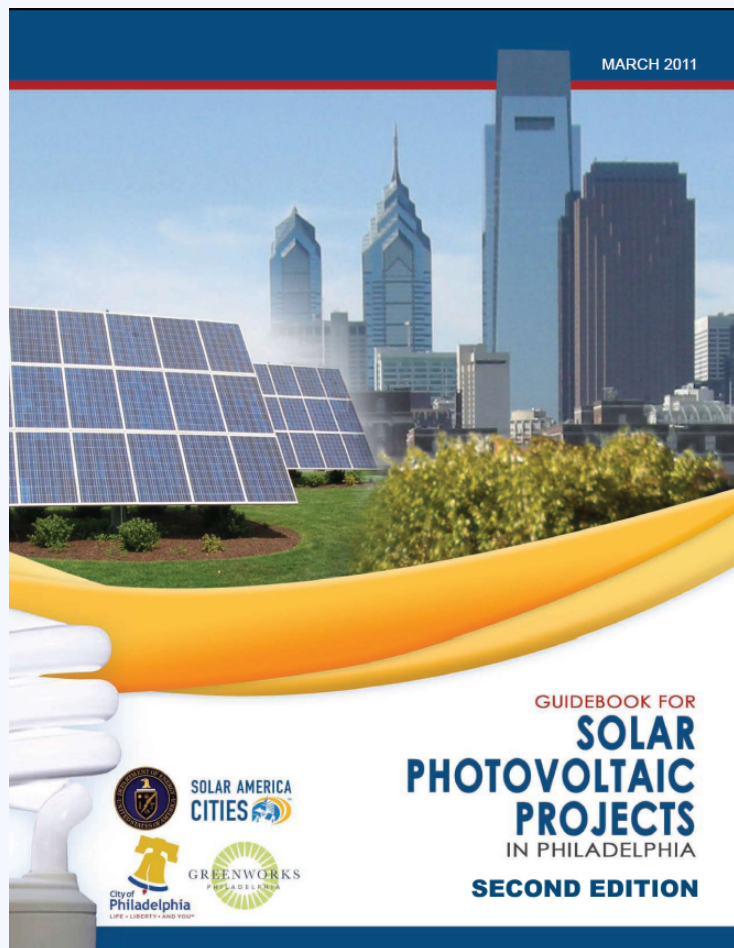
Provide a one-line diagram that includes the following information:

- Label whether the system is stand-alone, grid-tied, or hybrid.
- Conductor sizes.
- Conductor insulation types (i.e., THHN, THWN, direct burial cable, etc.).
- Conductor material (i.e., copper/aluminum).
- Conduit sizes.
- Conduit material (i.e., non-metallic, EMT, etc.).
- Over current device ratings.
- Existing and new panel amperage ratings (buss ratings).
- Series and parallel configuration of the module connections.

Form: B/46 - Rev. 01.21.11 - g:/publications/building/B46SolarPhotovoltaicChecklist.pdf

- List required forms, diagrams or plans and where they can be found and any other documentation, signatures or approvals
- Describe the fee structure and options for payment
- Provide application submittal instructions
- Office locations, hours and appropriate staff contacts
- Include citations to relevant code sections or other references for technical requirements

# Solar Permit Guidebooks



## Broader Look at Solar Permitting Process


- Solar Installation Process Overview
- Licensing and Code Requirements
- Interconnection Process
- Electrical Permit Requirements
- Building Permit Requirements
- System Inspection Process
- Information on Incentives
- Definitions of Uncommon terms and acronyms

# Website and Electronic Resources

- Permitting requirements applicable to solar
- Application form and any checklists
- Detail on how the application will be processed
- Links to other regulatory or private entities involved in solar permitting
- Links to additional information and resources

The screenshot shows the website for the Bureau of Planning and Sustainability, City of Portland, Oregon. The page is titled "Solar Energy Program" and features a navigation menu with options like Home, What We Do, News and Events, Library, and About Us. The main content area includes a welcome message, a large yellow sun icon, and several sections of text and links. On the left, there are links for "For Residents and Businesses", "For Local Governments", "For Contractors", "Commercial Options", "Solar and Your Historic Home", "Ten Steps to Solar", "Does Solar Work in Portland?", and "Certified Solar Installers". The main text describes the City of Portland's solar program, launched in 2006, and mentions the "Solar Now!" campaign. On the right, there is a "The Solar Now! Campaign" banner with the text "SOLAR NOW! GOOD ENERGY for OREGONIANS" and "Portland is a DOE Solar City!". Below this, there is a "Solar America Cities" logo and a list of projects awarded, including "Portland receives Solar America Cities Special Projects award" and "PDOT solar parking meter webpage". At the bottom, there is a "Clean Energy" section with links for "RFP for Community Solar", "Clean Energy Works Oregon", and "Solar Energy Program".

# Solar Permit Application Form



**City of Phoenix**  
DEVELOPMENT SERVICES DEPARTMENT

**Solar Water Heating System**  
Residential Permit Application

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Date: \_\_\_\_\_

Project Name: \_\_\_\_\_

Project Address: \_\_\_\_\_

Subdivision Name: \_\_\_\_\_ Lot #: \_\_\_\_\_

Project Square Footage: \_\_\_\_\_ Project Valuation: \$ \_\_\_\_\_

**Description of Work:**

Installation of a solar water heating system. Roof mounted collectors:  Yes  No

Quantity and size of collectors: \_\_\_\_\_ Roof mounted storage tank:  Yes  No

Weight of system including weight of working fluid in the collectors/tanks: \_\_\_\_\_ psf  
(Structural analysis of existing roof system is required if weight exceeds 5 psf)

SRCC #: \_\_\_\_\_ System model name: \_\_\_\_\_

System type: \_\_\_\_\_

**Owner Information:**

Owner/Business Name: \_\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Contact Person: \_\_\_\_\_ Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

**Contractor Information:**

Business Name: \_\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Contact Person: \_\_\_\_\_ Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

Local Business (Phoenix PLT) #: \_\_\_\_\_

State Tax #: \_\_\_\_\_ State License Class and Number (ROC): \_\_\_\_\_

**Applicant Signature:**

Check One:  Owner  Contractor  Other \_\_\_\_\_

X: \_\_\_\_\_ Print Name: \_\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Company Name: \_\_\_\_\_ Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

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**-----Staff Use Only -----** Initials: \_\_\_\_\_

Permit Type: \_\_\_\_\_ Permit #: T \_\_\_\_\_ Permit Name: \_\_\_\_\_

Project Number: \_\_\_\_\_ CITA  Yes  No C Of O  Yes  No

Census: \_\_\_\_\_ Qtr Sec: \_\_\_\_\_ Cncl Dist: \_\_\_\_\_ Zoning: \_\_\_\_\_

Units: 0 Occupancy: N/A Const Type: I:VB Scope Code: SOLAR W/H Struc Class: 026

Review Fee Code: \_\_\_\_\_ Fee: \_\_\_\_\_ Permit Fee Code: \_\_\_\_\_ Fee: \_\_\_\_\_

Total: \_\_\_\_\_

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This publication can be made available in alternate formats (Braille, large print, computer diskette, or audiotape) upon request. Contact the Development Services Department at (802) 262-7811 voice or (802) 534-5500 TTY.

S:\Solar Water Heater Application.doc TRT\DOC\00464  
WEB: New 8/09

## Bill Brooks, Solar ABCs, Expedited Permit Process for PV Systems (model form)

**EXPEDITED PERMIT PROCESS FOR PV SYSTEMS**

The information in this guideline is intended to help local jurisdictions and contractors identify when PV system installations are simple, needing only a basic review, and when an installation is more complex. It is likely that 50%-75% of all residential systems will comply with these simple criteria. For projects that fail to meet the simple criteria, resolution steps have been suggested to provide as a path to permit approval.

**Required Information for Permit:**

1. Site plan showing location of major components on the property. This drawing need not be exactly to scale, but it should represent relative location of components at site (see supplied example site plan). PV arrays on dwellings with a 3' perimeter space at ridge and sides may not need separate fire service review.
2. Electrical diagram showing PV array configuration, wiring system, overcurrent protection, inverter, disconnects, required signs, and ac connection to building (see supplied standard electrical diagram).
3. Specification sheets and installation manuals (if available) for all manufactured components including, but not limited to, PV modules, inverter(s), combiner box, disconnects, and mounting system.

**Step 1: Structural Review of PV Array Mounting System**

Is the array to be mounted on a defined, permitted roof structure?  Yes  No  
*If No due to non-compliant roof or a ground mount, submit completed worksheet for the structure WKS1.*

**Roof Information:**

1. Is the roofing type lightweight (Yes = composition, lightweight masonry, metal, etc...) \_\_\_\_\_  
*If No, submit completed worksheet for roof structure WKS1 (No = heavy masonry, slate, etc...).*
2. Does the roof have a single roof covering?  Yes  No  
*If No, submit completed worksheet for roof structure WKS1.*
3. Provide method and type of weatherproofing roof penetrations (e.g. flashing, caulks) \_\_\_\_\_

**Mounting System Information:**

1. Is the mounting structure an engineered product designed to mount PV modules?  Yes  No  
*If No, provide details of structural attachment certified by a design professional.*
2. For manufactured mounting systems, fill out information on the mounting system below:
  - a. Mounting System Manufacturer \_\_\_\_\_ Product Name and Model# \_\_\_\_\_
  - b. Total Weight of PV Modules and Rails \_\_\_\_\_ lbs
  - c. Total Number of Attachment Points \_\_\_\_\_
  - d. Weight per Attachment Point (b + c) \_\_\_\_\_ lbs (if greater than 45 lbs, see WKS1)
  - e. Maximum Spacing Between Attachment Points on a Rail \_\_\_\_\_ inches (see product manual for maximum spacing allowed based on maximum design wind speed)
  - f. Total Surface Area of PV Modules (square feet) \_\_\_\_\_ ft<sup>2</sup>
  - g. Distributed Weight of PV Module on Roof (b + f) \_\_\_\_\_ lbs/ft<sup>2</sup>  
*If distributed weight of the PV system is greater than 5 lbs/ft<sup>2</sup>, see WKS1.*

**Step 2: Electrical Review of PV System (Calculations for Electrical Diagram)**

**In order for a PV system to be considered for an expedited permit process, the following must apply:**

1. PV modules, utility-interactive inverters, and combiner boxes are identified for use in PV systems.
2. The PV array is composed of 4 series strings or less per inverter, and 15 kWSTC or less.
3. The total inverter capacity has a continuous ac power output 13,440 Watts or less
4. The ac interconnection point is on the load side of service disconnecting means (690.64(B)).
5. The electrical diagram (E1.1) can be used to accurately represent the PV system.

*Fill out the standard electrical diagram completely. A guide to the electrical diagram is provided to help the applicant understand each blank to fill in. If the electrical system is more complex than the standard electrical diagram can effectively communicate, provide an alternative diagram with appropriate detail.*

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2 EXPEDITED PERMIT PROCESS FOR PV SYSTEMS



# Solar Permit Application Form

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- **Clear** identification of the precise information needed to process a permit for a solar installation
- **Consistent** to the extent possible across jurisdictions in a region or state
- Model: Solar ABCs

# Sustainable CUNY



CUNY Sustainability Project



Sustainable Energy



CUNY SustainableWorks



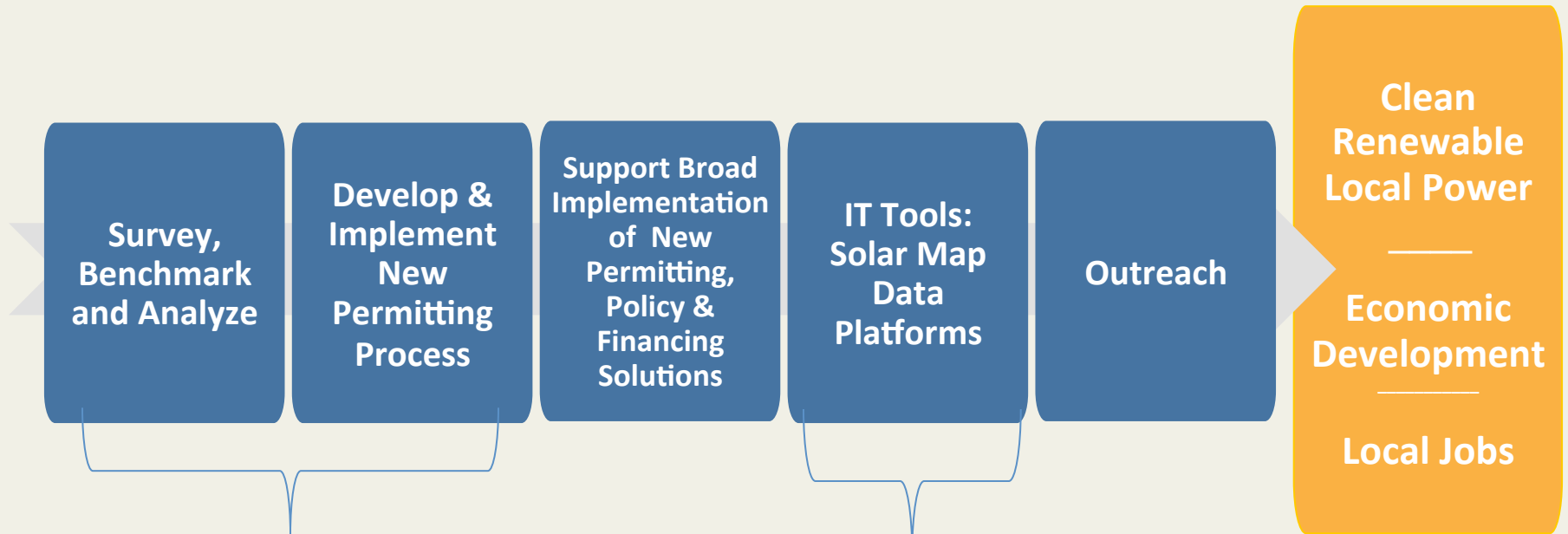
Modeling a CUNY transformation

Building the tools to move cleantech in to NYC and beyond

Building commercialization platforms



# NYSOLAR SMART





*Enhancing consistency and transparency in processes statewide*

Develop &  
Implement  
New  
Permitting  
Process

- Standardized permit for simple systems that are 12 kW or smaller
- Based on Long Island's form and Solar ABCs
- Solar-specific permit form that uses plans and diagrams required by NYSERDA and/or utility
- Asks for property information, as well as information on equipment and mounting system
- Checklist to ensure that systems fall within certain parameters and comply with local and state codes
- Will work with jurisdictions interested in adopting expedited permit form and process

# Solar Permit Application Form

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- **Clear** identification of the precise information needed to process a permit for a solar installation
- **Consistent** to the extent possible across jurisdictions in a region or state
- Model: Solar ABCs

# Solar Permit Fees

**Fees should be based upon staff time it takes to process solar permit application**

- The Vote Solar Initiative, Project: Permit—community-led fee-reduction campaign  
[www.projectpermit.org](http://www.projectpermit.org)
- Sierra Club, Loma Prieta Chapter (California)
  - SB 1222 (2012)—fee statute
- Other state fee statutes—Colorado, Arizona
- Fee waivers—City and County of Honolulu

**BREAK—15 minutes**

# Poll

- How many of you do in-person submittal with later review for all applications?
- How many of you have some sort of expedited process, such as over-the-counter review for certain systems?
- How many of you offer online permitting?



# Application Submittal and Review

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- Most common process = in-person submittal with later review
- **Potential Improvement:** Expedited review for pre-qualified projects, plans or installers
- Simple System Pre-Qualification (San Jose and Solar ABCs)
- Plan Templates or Pre-Approvals (Honolulu)
- Installer Pre-Qualification (Long Island Unified Solar Permitting Initiative)

# Common Expedited Review Qualifications

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- Rooftop installations on residential structures
- Size limited (often to 10 kW or below)
- A maximum weight per sq. ft., i.e. 5 lbs/sq ft
- Minimum clearance range around the equipment
- Maximum height above the roof surface
- Panels and inverters installed per manufacturers' specifications

# Application Submittal and Review

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**Over-the-counter submittal and review**—  
for qualified systems

- Often more efficient for city and applicant
- Example: Scottsdale, AZ—for all residential plan review, including solar
- Can be limited to “simple systems” that meet pre-identified goals
- Goal – one trip, short wait time

# Application Submittal and Review

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## Online or electronic submittal and review

- Potential to be significantly more efficient for city and applicant
- Online applications can present education opportunity and increase completeness
- Can improve communication opportunities
- However, can present high upfront costs
- Can be rolled out slowly through small steps

# Application Submittal and Review

City of Sacramento  
Community Development  
Customer Service [Skip Navigation](#)



About the City Departments Jobs News Business Emergency [Community Development Link](#)  Search

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today to get the latest info.

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Building  
Code Compliance  
Planning  
Public Meetings  
Forms  
Tools & Reference

Contact CDD  
Application/Permit Search  
Customer Warranty  
Frequently-Asked Questions  
Maps



[Return to CDD Homepage](#)

[City Home](#) > [CDD](#) > [Customer-Service](#) > Sacramento Streamline Program



## Sacramento Streamline Program

Community Development has embarked on numerous changes to make the building permit process easier –it will save time, money and trips to the public counter. Sacramento Streamline improvements will happen in stages, over the next several months, so stay in touch as these updates become available.

### Improvements Now Available

- **Appointment Scheduling Program - NEW**  
Stop waiting for your number to be called! The City's Community Development Department is now offering appointments for select services, including:
  - First time submittals
  - Resubmittals
  - Sign and revision submittals
  - Permit pickups
  - Building plans that are ready-to-issueAppointment times are available on Tuesdays and Thursdays between 8 and 9 a.m. and 2 and 4 p.m. To schedule an appointment, download the [customer information sheet](#) to get the full details on what's required and who to contact.
- **ePlan Check - NEW**  
Commercial building plans can now be submitted electronically, reducing the need to submit hard copy building plans. Plans can be placed on disk or thumb drive and submitted at the public counter. To get started, download the following documents.  
[Submittal Requirements for E-Plan Check - Commercial Building Permits](#)  
[Verification Checklist](#)  
To check your electronic plan status, visit this [link](#).

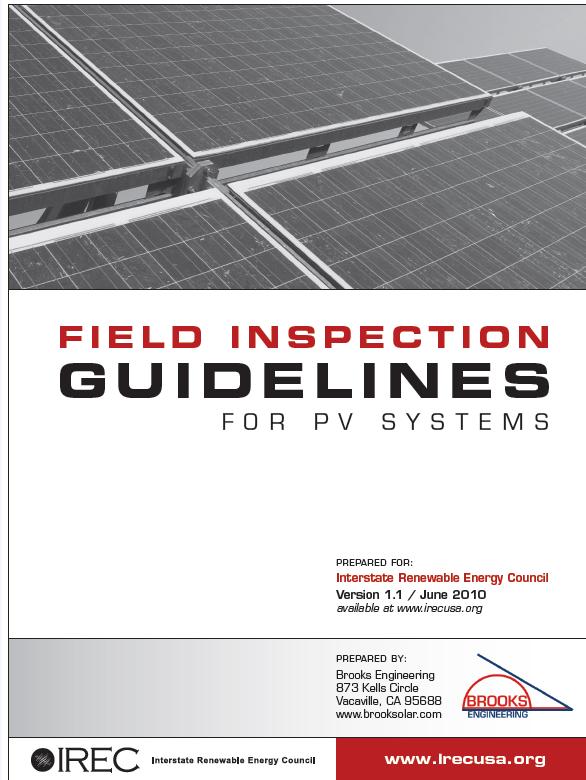
# Inspection Scheduling

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- **Frequency and timing of inspections = critical cost component of solar installation**
  - Rough or in-progress inspection
  - Engineer on site
- **Potential improvements:**
  - Reasonable time window
  - Ease of scheduling
- **Example: Miami-Dade County, Florida**

# Inspection Checklists & Guidelines

To enable inspectors to know what to look for in a solar inspection, specifically



## City of San Diego Residential Photovoltaic Systems Inspection Guidelines

The purpose of inspections by DSD staff is to ensure compliance with the California Electrical Code (CEC), other applicable codes and regulations, and the approved plans. The intent of the regulations is the practical safeguarding of persons and property from hazards arising from installation of solar systems. The following guidelines were developed to assist you with inspection process for the installation of the Photovoltaic (PV) system.

All equipment, array modules, inverters, racking, combiner boxes, DC disconnects, fittings, etc., shall be installed per approved plans and manufacturer installation instructions. All material and equipment shall be listed and labeled by an approved testing agency.

### A. The Inspection Process:

It is the contractor or owner's responsibility to schedule and coordinate all required inspections and obtain approvals before covering or concealing any work. The contractor or responsible party shall be available at the jobsite and provide proper access for the inspector. Some inspections can be combined and/or eliminated if all of the new work and equipment is exposed and accessible. Some installations may require only a "final" inspection.

The following inspections are required:

#### For Ground Mounted Array Systems:

- Footings for array frame
- Underground Electrical (raceway and conduits)
- Final Inspection (complete system including modules, panel, wire terminations, grounding, etc.)

#### For Roof Mounted Array Systems:

- Rough electrical (for concealed wiring if applicable)
- Roof array and bond (for integrated systems or tile roofs)
- Final Inspection

# Inspector Training

## Regional Training Providers



## Photovoltaic Online Training Platform (PVOT)

- No-cost online training for code officials, architects, installers, etc.
- Three goals:
  1. Instruct code officials in reliable field inspection practices for PV installations
  2. Substantially increase reach and scale of training for code officials in the U.S.
  3. Quickly and cost-effectively reach more code officials than with onsite workshops and seminars
- Six basic learning modules covering the major topics of concern for expedited permitting and field inspection
- Seventh module is immersive activity imbedded in an open-source, game-based framework with its own assessment
- <https://www.nerlearning.org/web/guest/course-details?cid=402>



# Poll

Do you think your permitting process for solar requires **significant, moderate, or minor** reform?

# Activity: **Apply it to your process**

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What best practices or innovations from other jurisdictions can you take with you?

- Pre-application process
- Application submittal and review
- Inspections

How can we help?

# Conclusions and Take-Aways

# Solar Permitting Best Practices

1. Information available online
2. Fair, flat permit fees
3. Expedited review for simple systems
4. Electronic and online permit processing
5. Just one trip to the permit office
6. Standard certification for installers
7. Permitting staff trained in solar
8. Only one inspection
9. Reduced inspection time windows



## Streamlining the Solar Permitting Process

### *Solar Permitting Best Practices*

*(updated February 2013)*



1. **Post Requirements Online:** Information on permit fees, application requirements and process should be easily accessible via the city's website so applicants can review and prepare materials in advance. Municipalities should provide a submittal checklist of all requirements for rooftop solar PV and solar thermal permitting in a single online location.
2. **Use a Standard Permit:** The majority of small residential PV systems can be processed quickly if they meet clearly defined review requirements. We recommend adopting an expedited permitting review process for these systems that enables review over-the-counter or via electronic processing within one day. The *Solar ABC's Expedited Permit Process for PV Systems* provides a good example that can be adopted in full or used as a starting point. (Note, for larger systems, not covered by the *Expedited Permit* guidelines, municipalities should set and adhere to standard permitting requirements to make the process clear and transparent. The municipality should work to make these standards consistent with neighboring jurisdictions.)
3. **Enable Online Processing:** Moving to a fully online permitting system can significantly reduce travel time for installers and workload for municipalities. We recommend adopting a system that enables submittal, review and approval of PV permits via email or a website.
4. **Speed up Permitting:** Travel to-and-from the building department can be one of the most cost intensive parts of the permitting process for installers. Obtaining a PV permit should require no more than one visit to the building department for properly completed applications.
5. **Cap Permitting Costs:** Using a flat-fee method instead of a value-based method to assess permit fees streamlines the process and ensures that larger solar energy systems are not arbitrarily penalized. Fees should fairly reflect the time needed for city staff to review and issue a permit - that's something that remains constant regardless of system size. A reasonable residential permit fee should be \$230 or less if best practices are followed.
6. **Adopt Standard Licenses:** We recommend accepting NABCEP PV installer and solar thermal certification in lieu of community-specific solar licenses.
7. **Train Permitting Staff in Solar:** Training building department staff to review permits and perform standard fire department checks reduces time and cost. Cities should make one or half-day workshops available to relevant staff. Trainings should be available to both building department plan check and review staff as well as for inspectors. [Click here](#) for free online training for code officials, developed by IREC.
8. **Narrow Inspection Appointment Window:** Keeping the windows for inspection appointments at or below two hours reduces the amount of costly worker time spent waiting for inspectors to arrive. Inspectors could also call contractors as appointment time grows close to further save time.
9. **Remove Excessive Reviews and Inspections:** Eliminating reviews that do little to validate the safe and efficient operation of a proposed PV system (i.e. plan checks with aesthetic criteria) removes unnecessary costs and expedites permit issuance. For efficiency, we recommend requiring only one inspection for standard rooftop systems on existing homes or businesses.

For more information on solar permitting best practices visit [www.projectpermit.org](http://www.projectpermit.org) or [www.irecusa.org](http://www.irecusa.org) or email [projectpermit@votesolar.org](mailto:projectpermit@votesolar.org).

# Further Resources

**Sharing Success**  
Emerging Approaches  
to Efficient Rooftop  
Solar Permitting

www.irecusa.org May 2012

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**PROJECT PERMIT**

When it comes time to install a new solar system, the local permitting process can be a walk in the park or a nasty bureaucratic headache. In 2007, local permitting and inspection added 13% to what a homeowner would spend on solar panels. Today, permitting costs add up to 33% more to a solar system, and within a few years they could add 50%!

Inefficient and costly permitting is becoming a significant barrier to solar energy development. Fortunately, it is a barrier that can be easily reduced by actions at the local level.

Click here to see if you city is a permitting champion or a laggard.

Get involved with [PROJECT PERMIT](#) and help us improve permitting practices in towns and cities across the U.S.

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[Check out our new infographic showing how far American solar has come in the last five years.](#) Click it. Like it. Tweet it. Post it. Share it. Then let's get back to work because there is so much farther we can go....

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# Follow up and Questions

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