

3.3

Streamlined Solar Permitting and Inspection Processes

Local jurisdictions typically require a building and/or electrical permit before installing a **photovoltaic** (PV) system and a plumbing and/or mechanical permit before installing a **solar water heating** (SWH) system. Installers obtain permits after an installation is under contract, but before they begin putting in the system. The purpose of permits is to ensure that a solar installation meets engineering and safety standards. Following installation, an inspector will typically verify that the installation complies with code. When the final inspection is completed and approved, the system can begin operation. PV systems need to be approved for **interconnection** by the serving utility before they can begin to operate.

These processes exist for good reason and are legally required in much of the United States. Reasonable requirements can serve as a useful tool for local governments to ensure public safety and track installations in their communities. At the same time, the process of obtaining permits can substantially increase the time and cost of installing a solar system, often becoming a major obstacle to solar market development. Permitting requirements and processes can vary greatly between jurisdictions, presenting informational and logistical challenges to installation contractors working across those jurisdictions. And in some areas, it can take months to complete the plan review process and obtain a permit. Unreasonable requirements can add burdensome costs to local governments, installation contractors, and solar energy system owners.

Several cities have streamlined the **solar permitting process** with clearly defined requirements, expedited processing for standard installations, and the option to submit paperwork online. Some local governments are going a step further and working with other jurisdictions in their regions to make the permitting requirements and process consistent across jurisdictions and throughout the state. Most of the codes and standards for PV installations are national in scope. Even though state requirements for construction contracting do vary throughout the United States, consistent solar permitting standards across the nation should be achievable despite these state contracting differences.

Costs in the permitting process vary widely across the country. Permit fees, which are set by local jurisdictions, also run the gamut—from no fees to more than \$1,000 per solar permit. Cities typically set solar permit fees using a flat-fee method, a valuation method, or a combination of the two. Flat-fee assessments charge the same fee regardless of system size. Valuation-based fees are calculated based on the cost of the solar system. Several cities have changed the method behind PV system valuation, subtracting the cost of the actual solar panels from the total cost of the project before calculating the fee. Solar panels, or modules, can represent approximately half the cost of a PV system.

Permit fees are often the focus of concern, but a broader view of cost includes costs to the contractor, jurisdiction, and system owner. Waiving or discounting fees for local building permits, plan-checking, or design review can support local solar market growth. Online document submittals and predictable review schedules, though, can yield greater savings to a project than waiving fees. The key is to develop a process that reduces costs to all stakeholders while maintaining or improving public safety. Even though permit fees are set locally, states can establish standards for municipalities and counties. And although **permitting incentives** alone will not drive solar development, a community can use this important local policy option to complement other federal, state, local, or utility policies.

BENEFITS

Simplifying permitting requirements and processes can increase the likelihood of successful solar installations and save significant time and money for local governments as well as installation contractors and system owners. Creating consistent permitting processes across a state or region benefits solar installers by providing a standard set of operating procedures, reducing uncertainty, and allowing them to produce more accurate estimates. Standardization can also enable jurisdictions to pool resources and share plan checking and inspection staff. And by reducing local permit fees, or adopting fast-track permitting for solar projects, local governments can demonstrate their support for community investment in solar.

Implementation Tips and Options

- Understand the entire permitting and inspection process for PV and SWH systems and the dynamics among the entities involved (installation contractors, consumers, various city departments and inspection officials, and the local utility).
- Simplify permit application forms and review processes and leverage resources by coordinating permitting procedures with nearby jurisdictions and providing training to educate building and electrical inspectors about PV and SWH technologies and installations. See [3.4, Conduct Code Official Training](#).
- Outline the permitting and inspection process in the community so that prospective solar system owners and solar contractors have a clear understanding of the steps for local approval.
- Allow over-the-counter building permits for standard residential solar energy systems. Requirements for a prescriptive over-the-counter plan review often include maximums on wattage, distributed weight, and height of the system. Consider instituting a flat-fee method that reflects the actual costs of issuing the permit. The Sierra Club recommends that all cities reduce their solar permit fees to \$300 or less for residential PV systems that are flush-mounted to rooftops. The \$300 fee is based on the cost of 2 to 4 hours of labor for experienced building department staff members to process the permit and complete the inspection. In 2009, the Solar America Board for Codes and Standards (Solar ABCs) produced a report on expedited permitting process that suggests the following fee guidelines: \$75–\$200 for small PV systems (up to 4 kilowatts); \$150–\$400 for large PV

systems (up to 10 kilowatts); and \$15–\$40 per kilowatt for systems above 10 kilowatts. See www.solarabcs.org/permitting for more information.

- Publicize the fee structure on the permitting agency’s Web site along with the required procedures explained in the simplest possible terms.
- Allow document exchanges to be conducted by company representatives. Some jurisdictions require that licensed electricians pick up permits; this can place an unnecessary burden on installation firms.
- Fast-track solar permits to the extent appropriate (e.g., for standard residential installations or those from contractors with a reliable track record).
- Establish a clear path for communications between code enforcement offices and the local utility provider to expedite the interconnection and inspection processes.

Examples

Portland, Oregon: Processing Permit Applications Electronically

Portland’s Bureau of Development Services (BDS) developed an electronic permit submittal process for solar installers, making it easier than ever to get residential solar building permits. For qualified projects, installers can e-mail the permit application to the city and expect a review within approximately 2 working days. Permits were also set to a flat fee for residential installations meeting certain requirements; fees for commercial systems use a reduced-valuation method. Contractors can submit multiple applications at the same time, and receive an e-mail when the permits are approved and ready. They can then pick up and pay for the permits at the BDS desk. These changes created certainty for the contractors, and were easy-to-implement, low-tech solutions that have given Portland’s solar installers a real business benefit. BDS also trained staffers at the permitting desk as solar experts and set aside weekly times for solar contractors who need help filing their permits in person. Additionally, the Bureau of Planning and Sustainability worked with BDS to develop testing guidelines and best practices for installing solar energy systems on standing seam metal roofs and for installations with ballasted racking systems. For more information on Portland’s residential and commercial permitting process for solar energy installations, visit www.portlandonline.com/OSD/index.cfm?c=47394&.

San José, California: Streamlining the Permitting and Inspection Process

In San José, electrical permits for PV systems can be obtained over the counter using a simple checklist. Building permits can be waived for roof installations if the installation meets the following criteria:

- The total panel weight (including frame) is no more than 5 pounds per square foot.
- The maximum concentrated load at each point of support does not exceed 40 pounds.
- The maximum height above the roof surface does not exceed 18 inches.

San José also schedules the post-installation inspection by appointment, usually within a 2-hour window. In some jurisdictions, only a specific day is specified and contractors are sometimes

expected to wait for up to 8 hours for the inspector to arrive. This increases the contractor's labor costs and therefore the price the customer pays for the solar system.

The city of San José supplies valuable information on obtaining permits and scheduling inspections, along with property information, past permit history, and zoning information on any property in the city at www.sanjoseca.gov/building. Users can also apply for permits and schedule inspections online.

Visit www.solaramericacommunities.energy.gov for more inspiring examples from communities across the United States. 

Additional References and Resources

WEB SITES

Solar America Board for Codes and Standards

www.solarabcs.org

The Solar ABCs is a central body created to address solar codes and standards issues. The U.S. Department of Energy (DOE) funds Solar ABCs.

SolarTech: Making Solar Happen

www.solartech.org

SolarTech is a PV industry consortium focused on creating a Solar Center of Excellence in the Silicon Valley. Its goal is to identify and resolve inefficiencies inherent in the delivery of PV systems, and the consortium is developing a set of best practices for permitting PV systems.

Vote Solar: Project Permit

<http://votesolar.org/city-initiatives/project-permit/>

This Web site allows users to compare the PV permitting process in various communities across the country, and to upload information on the process in their own community.

PUBLICATIONS

Commercial Solar Permit Fee Report

Sierra Club, October 2010

This study reviews commercial permit fees in Northern California. The report includes a detailed list of recommendations for municipalities interested in reducing permit fees and streamlining the permitting process.

Report: <http://lomapiettaglobalwarming.sierraclub.org/CommercialPVSurvey.php>

Field Inspection Guidelines for PV Systems

Prepared by Bill Brooks for the Interstate Renewable Energy Council, June 2010

This 2010 update to the 2006 edition consolidates the most important aspects of a field inspection into a simple process that can be performed in as few as 15 minutes. Explanation and illustrative pictures are provided to instruct the inspector on the specific details of each step.

Publication: <http://irecusa.org/wp-content/uploads/2010/07/PV-Field-Inspection-Guide-June-2010-F-1.pdf>

Addressing Institutional Barriers: Opportunities for Streamlining Solar PV Project Timelines

SolarTech Industry Analysis in collaboration with the California Solar Energy Industries Association (CALSEIA), January 2010

In this study SolarTech provided the specific recommendations describing the institutional barriers inhibiting the market acceleration of PV to meet the California Solar Initiative (CSI) goals. This report focuses on proposing methodologies for improving overall project end-to-end cycle times for distributed generation PV projects.

Report: http://solartech.org/index.php?option=com_st_document&view=documentdetail&id=17&Itemid=92

A Step by Step Tool Kit for Local Governments to Go Solar

California Energy Commission's New Solar Homes Partnership, December 2009

The tool kit contains an array of strategies and options that local governments can implement to help encourage solar developments. It discusses incentive and rebate options, focusing on streamlined permitting and permit fee reductions or waivers for solar energy installations, and also includes a model ordinance for a permit fee waiver for residential solar installations.

Report: www.energy.ca.gov/2009publications/CEC-180-2009-005/CEC-180-2009-005.PDF

Expedited Permit Process for PV Systems: A Standardized Process for the Review of Small-Scale PV Systems

Solar America Board for Codes and Standards, October 2009

The expedited permitting process described in this report simplifies the technical requirements for PV contractors submitting an application for construction of a new PV system while also facilitating the efficient review of the application's electrical and structural content by the local jurisdiction awarding the permit.

Report: www.solarabcs.org/permitting

Solar Electric Permit Fees in Northern California: A Comparative Study

Sierra Club, December 2008

This study compares the progress of 131 municipalities in Northern California striving to make permit fees for residential solar energy installations affordable. The report includes a detailed list of recommendations for municipalities interested in reducing permit fees and streamlining the permitting process.

Report: www.lomapieta.sierraclub.org/global_warming/pv_permit_study.pdf

Taking the Red Tape Out of Green Power: How To Overcome Permitting Obstacles to Small-Scale Distributed Renewable Energy

Network for New Energy Choices, September 2008

The Network for New Energy Choices reviews a wide variety of political perspectives and priorities expressed in a range of local permitting rules in this publication. The report suggests how existing rules can be altered to support growing renewable energy markets.

Report: www.newenergychoices.org/uploads/redTape-rep.pdf

Inspector Guidelines for PV Systems

Pace University Law School, Renewable Energy Technology Analysis Project, March 2006

These guidelines are a framework for inspecting and permitting PV systems. They are divided into two stages: plan checking and field inspection. The objective of these guidelines is to facilitate the installation of safe PV systems at minimal cost.

Report: www.irecusa.org/fileadmin/user_upload/NationalOutreachPubs/InspectorGuidelines-Version2.1.pdf