California Solar Permitting Guidebook

Improving Permit Review and Approval for Small Solar Systems









Spring 2015 Second Edition (Updated) Developed by: Solar Permitting Task Force Governor's Office of Planning and Research Office of Governor Edmund G. Brown Jr.

California Solar Permitting Guidebook

Improving Permit Review and Approval for Small Solar Systems



Governor's Office of Planning and Research Office of Governor Edmund G. Brown Jr.

Project Managers

Claudia Eyzaguirre, Center for Sustainable Energy Jeffrey Mankey, Governor's Office of Planning and Research Sarah Smith, Center for Sustainable Energy Carolyn Angius, Governor's Office of Planning and Research

Lead Contributors

California Building Standards Commission California Department of Housing and Community Development California State Fire Marshal California Solar Energy Industries Association (CALSEIA) City of Los Angeles Mar Structural Design Center for Sustainable Energy









Published spring 2015 Second edition (updated)

Partial funding from the U.S. Department of Energy, SunShot Initiative

TABLE OF CONTENTS

PREFACE	5
CURRENT LAWS, REGULATIONS AND CODES	8 8
THE PROJECT APPROVAL PROCESS	2
Permit Application and Plan Review	5
3 RECOMMENDATIONS FOR EXPEDITED PERMITTING FOR SMALL PV SYSTEMS18	8
PV Toolkit for Local Governments 27 1) Submittal Requirements Bulletin — Solar Photovoltaic Installations 10 kW or Less22 2) Eligibility Checklist for Expedited Solar Photovoltaic Permitting 28 3) Solar PV Standard Plan — Simplified Central/String Inverter Systems 26 4) Solar PV Standard Plan — Simplified Microinverter and ACM Systems 36 5) Structural Criteria for Residential Rooftop Solar Energy Installations 48 6) MOU Regarding Solar Photovoltaic Plan Review and Inspection Services 57 7) Inspection Guide for PV Systems 57	2 5 6 9 5 5
RECOMMENDATIONS FOR EXPEDITED SOLAR WATER HEATING INSTALLATIONS 65	5
SWH Toolkit for Local Governments	
1B) Submittal Requirements Bulletin — Solar Pool Heating Installations 30 kWth or Less	1
 2A) Eligibility Checklist for Expedited Solar Domestic Water Heating Permitting73 2B) Eligibility Checklist for Expedited Solar Pool Heating Permitting	3 4 5 6
 4) Structural Criteria for Residential Rooftop Solar Energy Installations	9
Part RESOURCES AND INFORMATION	
Understanding the Code	3 8 6 9

PREFACE

California is a world leader in renewable energy generation. Solar and wind power, as well as emerging technologies such as biomass and fuel cells, are transforming California. Renewable energy is helping to power the state's economy, reducing our state's reliance on imported energy sources and decreasing air pollution.

California's state and local governments have set aggressive goals to expand renewable energy. In 2011, California adopted a Renewable Portfolio Standard (RPS) requiring that at least one-third of the state's electricity come from clean energy sources by 2020. Many local governments also have their own targets for renewable energy. Additionally, Governor Edmund G. Brown Jr. has set a specific goal of developing 12,000 megawatts of small-scale, localized renewable electrical power (often called "distributed generation") in California by 2020.

Small-scale renewable energy benefits California communities. It increases energy reliability for residents and businesses by generating electricity near where it is consumed. This type of energy can also provide stable electricity prices for consumers and creates thousands of jobs across California.

In order to expand small-scale renewable energy across California, Governor Brown instructed the Governor's Office of Planning and Research (OPR) to help remove barriers to its development. One such barrier is the patchwork of permitting requirements for small solar installations throughout the state. Solar energy systems have been installed in California for decades, and their technology, as well as the methods to install and maintain them, is well established. As a result, permitting for these small and simple solar projects should be as simple and standardized as possible.

The first California Solar Guidebook was published in 2012, the result of a collective effort of stakeholders from local government, the building industry, professional associations, solar companies, utility providers and state regulatory agencies. Many local permitting agencies adopted practices and standard documents outlined in the Guidebook. These practices made installing solar less expensive and increased expansion of this technology in California.



Despite these improvements, however, costs to permit solar are still higher than necessary. Increased solar adoption has inundated many jurisdictions with permit applications and inspection requests. Solar technologies have changed, new laws have been passed and codes have been revised. This second edition of the Guidebook addresses those changes, improves upon the recommended process for expedited permitting of solar PV systems, and adds information about solar water heating systems.

ACKNOWLEDGMENTS

This Guidebook was developed in collaboration with the following individuals and organizations.

Ken Alex, Jeff Mankey, Carolyn Angius, Jake Buffenbarger Governor's Office of Planning and Research Jennifer Alfsen Solar Nexus CSD Solar George Apple Leo Patnode Enphase Energy Mark Baldassari Misha Balmer, Alan Fields, Hilary Pearson Sungevity Brooks Engineering Bill Brooks International Code Council Larry Brugger Steve Burger City of Folsom Kelly M. Sherfey California Building Officials (CALBO) Emilio Camacho, Elli Harland California Energy Commission Claudia Cappio, Shawn Huff, Kyle Krause, Richard Weinert, Emily Withers Department of Housing and Community Development Nicholas Chaset California Public Utility Commission Val Anderson, Daniel Chia, Michael Galvez, Hilary Wall, Rick Hanson SolarCity Center for Sustainable Energy Sachu Constantine, Claudia Eyzaguirre, Tamara Gishri, Sarah Smith, Skip Fralick Jason Crapo Contra Costa County Wade Crowfoot Governor's Office Andy Davidson Unirac Bernadette Del Chiaro CALSEIA Tom Enslow Adams Broadwell Gary Gerber Sun Light & Power Sharon Goei City of Santa Clara Mark Goodman CLEE Pete Guisasola Bureau Veritas **Daniel Hamilton** ABAG Alison Healy City of San Francisco Andrew Henning, Kevin Reinertson, Mike Richwine CAL FIRE Tonya Hoover State Fire Marshal Don Hughes Santa Clara County Peter Jackson City of Bakersfield Mostafa Kashe Los Angeles County Janice Kluth City of Chula Vista Suzanne Korosec, Sherrill Neidich, Le-Quyen Nguyen California Energy Commission Sheila Lee City of Santa Clara Brian Leong City of Fresno City of Berkeley Greg Magofna and Sarah Moore Jeff Mathias Synergy Solar Tom McCalmont McCalmont Engineering Ed Murray Aztec Solar Jim McGowan, Michael Nearman, Enrique Rodriguez **Building Standards Commission** Les Nelson IAPMO Kimberly Martin, Stephanie Nicholas, Vince Nicoletti San Diego County Susan Oto Sacramento Municipal Utility District **Matthew Paiss** San Jose Fire Department Rhonda Parkhurst City of Palo Alto Vance Phillips City of San Ramon Michael Quiroz 3rd Wave Consulting Bob Raymer California Building Industry Association Patrick Redgate AMECO Solar **Rick Renfro** City of Elk Grove Glenn Schainblatt City of Sebastapol **Bill Stewart** SolarCraft John Taecker **Underwriters** Laboratories Theresa Townsend Division of the State Architect Brandon Treloar, Walker Wright Sunrun Shannan West GO Biz Scott Wetch Carter, Wetch and Associates Larry Williams Steel Framing Industry Association John Wolfe Mar Structural Design Osama Younan, Behzad Eghtesady City of Los Angeles Optony Thomas Yurysta City of Concord **Robert Woods** Eddie Bernacchi National Electrical Contractors Association New Day Solar Brandon Carlson Adam Gerza Sullivan Solar International Code Council Shawn Martin Patrick Healy County of San Diego Nancy Springer County of Butte Martin Redmond City of Palo Alto Beth Maynard Department of Housing and Community Development