PROFILES IN REGIONAL SOLAR PLANNING: A HANDBOOK AND RESOURCE GUIDE

2nd Edition

SOLAR OUTREACH PARTNERSHIP

NARC
Building Regional Communities
National Association of Regional Councils

Powered by
SunShot
U.S. Department of Energy

Toolkit

The purpose of this section of the *Guide* is to provide brief, user-friendly descriptions of regionally-appropriate tools that a regional planning organization can utilize to promote solar energy deployment. The toolkit is meant to be used along with the rest of the publication, but is a one-stop-shop for those looking for regional approaches to solar implementation.

It is important to note that often the first step in employing any of these tools is garnering support. Therefore, the first tool included in this Toolkit section is a one-pager providing talking points about the benefits of solar as well as links to fact sheets and other resources. The purpose of "The Case for Solar" one-pager is to assist RPO's to take the first step towards adding solar to their region's priorities. It is designed to be replicated and distributed.

The subsequent tools are more specific and range in complexity. Each tool is briefly defined in the "What is it?" box. Step-by-step instructions or a list of possible implementation options are provided in the "How do you do it?" box. The "Who else is doing it?" box provides brief descriptions and links to examples of regional planning organizations or other groups that have used this tool, including the case studies from Section IV. Additional resources specific to the tool are included in the bottom box, "Where can I get more information?"
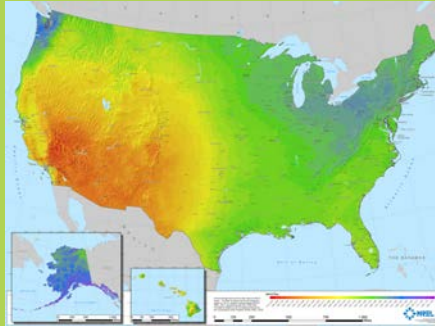
THE CASE FOR SOLAR

Potential

All regions have the potential for solar development.

The United States has 6X the solar capacity as Germany, world leader in solar. Even cloudy regions like the Upper Northwest, have plenty of solar potential, as illustrated in the figure.

Solar Energy Industries Association, www.seia.org.

Map source: NREL

Improves Local Economies

- The increasing value of solar installations has injected life into the U.S. economy. In 2012, solar installations were valued at 11.5 billion, up from 8.6 billion in 2011.[1]
- Homes with solar sold 20% faster and for 17% more than equivalent non-solar homes in California.[2]
- Solar industry clusters serve as a valuable business development and recruitment tool for local economic development agencies.[3]
- Economic impact is created through industry job creation incentives, workforce training support, and manufacturing tax credits and exemptions.[†]
- Land leases and property taxes through large-scale solar installations increase the value of residential properties and revenue opportunities for landowners.[‡]
- Solar can decrease the amount of energy dollars outsourced to other states' and countries' by shifting energy investments to local sources.[*]
- In Arizona, $1 spent on solar produced $1.67 in local economic activity. This totals a direct savings of $2.8–$4.5 million of economic activity for Arizona communities.[°]

[1] Solar Energy Industries Association, www.seia.org
[2] National Renewable Energy Laboratory, "A New Market Paradigm for Zero-Energy Homes: The Comparative San Diego Case Study," http://www.nrel.gov/docs/fy07osti/38304-01.pdf
[3] The Solar Foundation's Solar Job Census, www.thesolarfoundation.org[†]
[†] The Solar Foundation, State of the Solar Industry, http://thesolarfoundation.org/sites/thesolarfoundation.org/files/TSF_State%20of%20the%20Solar%20Industry_Final.pdf
[‡] The Solar Foundation's Solar Job Census, www.thesolarfoundation.org
[*] Solar Works for Minnesota, http://www.solarmn.org/docs/SESHandout.pdf
[°] Arizona Solar Center, www.azsolarcenter.org/economics/economic-benefits-of-solar.html

8.6 BILLION IN 2011 — 11.5 BILLION IN 2012

Flexible

- Solar does not need a lot of space; it can be placed on rooftops, integrated into buildings or mounted on the ground.[1]
- Solar can be placed on unused land like landfills and brownfields.[2]
- You don't have to tear up the street to install solar! It can be used to provide electric grid stability so you don't have to replace existing infrastructure.[3]

[1] Solar Energy Industries Association, www.seia.org
[2] U.S. Environmental Protection Agency, Repowering America's Land Program, www.epa.gov/renewableenergyland/
[3] Solar Energy Industries Association, www.seia.org

Creates Jobs

- Solar is growing at nearly 10X faster than the overall economy and it one of the fastest growing job creation industries in America.
- As of September 2012, solar industry employed over 119,000 workers.
- 14,000 jobs were created in 2012, 86% of these jobs are new. **86%**
- 1 out of every 230 new jobs in the U.S. economy was created in the solar industry.
- On the current trajectory, the number of jobs in solar is expected to increase by nearly 300 percent by 2030.

300% INCREASE BY 2030

- While solar is expanding, the fossil fuel industry cut its employee base by almost 4% in 2012.
- Solar creates high-skilled, well-paying jobs, providing a unique opportunity for workforce development efforts to train and retrain local workforces.

The Solar Foundation's Solar Job Census, www.thesolarfoundation.org

By the Numbers

- Nevada has enough solar energy to power every house in Carson City, the state capitol.
- There are more solar companies in New Jersey than tanning salons.
- Solar installations earned more revenue than ticket sales for the New England Patriots in 2012.
- In Maryland, the solar industry is bigger than its famous crab industry.
- If you stack all Colorado's solar panels together, it would reach 3 miles high.
- Texas has twice the solar potential of any other state.

Solar Energy Industry Association, Shareable Graphics, http://www.seia.org/news/multimedia/shareable-graphics

Achieve Energy/Environment Goals

- Climate Change Mitigation & Adaptation
- Improve Air Quality & Public Health
- Lower GHG Emissions

States Advancing Solar, "Overview of Benefits of Solar," www.statesadvancingsolar.org/solar-101/benefits-of-solar

Solar Planning for a Better Tomorrow

Integrating solar into current local or regional planning activities affirms a community's commitment to solar, promotes strategic long-term thinking and can help secure resources and political will to accomplish solar goals.

Tool #1:
The Case for Solar

Guides & Fact Sheets

Solar Powering Your Community: A Guide for Local Governments.
This guide is a comprehensive resource created to assist local governments and stakeholders in designing and implementing a strategic local solar plan.
http://www4.eere.energy.gov/solar/sunshot/resource_center/sites/default/files/solar-powering-your-community-guide-for-local-governments.pdf

Solar Energy Industries Association.
This website provides an extensive collection of fact sheets and resources advocating for solar energy development. http://www.seia.org/cs/fact_sheets

States Advancing Solar.
This website provides a comprehensive overview of the benefits solar provides to local governments. http://www.statesadvancingsolar.org/solar-101/benefits-of-solar

The Solar Foundation.
The Solar Foundation produces an annual Solar Jobs Census, which provides an overview of the solar industry's labor market current conditions and its potential for growth.
http://thesolarfoundation.org/research/national-solar-jobs-census-2012

A Comprehensive Review of Solar Access Law in the U.S.
This guide from Solar America Board of Codes and Standards provides a review of solar access laws in the U.S., as well as suggested standards for model statute and ordinances.
http://www.solarabcs.org/about/publications/reports/solar-access/pdfs/Solaraccess-full.pdf

Solar Energy Industries Association.
This website provides an extensive collection of fact sheets and resources advocating for solar energy development. http://www.seia.org/cs/fact_sheets

States Advancing Solar.
This website provides a comprehensive overview of the benefits solar provides to local governments. http://www.statesadvancingsolar.org/solar-101/benefits-of-solar

The Solar Foundation.
The Solar Foundation produces an annual Solar Jobs Census, which provides an overview of the solar industry's labor market current conditions and its potential for growth.
http://thesolarfoundation.org/research/national-solar-jobs-census-2012

A Comprehensive Review of Solar Access Law in the U.S.
This guide from Solar America Board of Codes and Standards provides a review of solar access laws in the US, as well as suggested standards for model statute and ordinances.
http://www.solarabcs.org/about/publications/reports/solar-access/pdfs/Solaraccess-full.pdf

Tool #1:
The Case for Solar

Planning & Zoning

Planning Advisory Service Essential Info Packet 30: Planning & Zoning for Solar Energy.
This info packet provides planning fundamentals for public officials including sample ordinances of solar access, solar siting and solar energy systems.
http://www.planning.org/pas/infopackets/open/eip30.htm

Solar Best Management Practices Planning Improvements.
The Mid-America Regional Council created a list of planning improvements to help organize and emphasize a jurisdiction's support of a building owner's right to use solar.
http://www.marc.org/environment/energy/solar_ready_kc.html

Renewable Energy Ordinance Frameworks.
The Delaware Valley Regional Planning Commission developed frameworks to provide clear, consistent guidance on how to construct renewable energy ordinances.
http://www.dvrpc.org/energyclimate/ModelOrdinance/solar.htm

Resource Centers & Technical Assistance

SunShot Resource Center.
This website maintains a comprehensive collection of resources on solar technologies and best practices to implement solar on the local level. http://www4.eere.energy.gov/solar/sunshot/resource_center/

State & Local Climate and Energy Program.
This website provides technical assistance, analytical tools, and outreach support to state, local and tribal governments on issues related to energy. http://www.epa.gov/statelocalclimate/

The Interstate Renewable Energy Council.
This website provides detailed information on state and national energy policies and solar standards and best practices. IREC's numerous reports provide effective techniques and best practices on how to accelerate solar development. http://www.irecusa.org/

Freeing the Grid.
This website highlights best practices in state net metering policies and interconnection procedures and grades each state in detail based upon their respective policies. http://freeingthegrid.org/

Database of State Incentives for Renewable & Efficiency (DSIRE).
This resource is a comprehensive source of information on incentives and policies that support renewables and energy efficiency in the United States. http://www.dsireusa.org/

SolarOPs Technical Assistance.
SolarOps offers complementary technical assistance for local governments to help them overcome barriers and deploy solar in their regions. http://solaroutreach.org/ta/

Tool #2:
Working with Stakeholders

What is it?

Regional planning organizations are in the unique position to advance solar energy technology improvements by engaging regional stakeholders, including utilities, local municipalities, state government, local solar or renewable energy associations, and consumers. Regional planning organizations can engage stakeholders to promote solar "friendly" policies, increase awareness of solar energy solutions, and facilitate the design and implementation of strategic local solar plans.

By collaborating with a range of different stakeholders, regional planning organizations can make significant strides toward advancing solar adoption in a region.

How do you do it?

- Work with utilities to promote policies, rules and regulations that affect solar installation, such as net metering and interconnection standards.
- Partner with state and local governments to adopt policies encouraging solar installations in your region.
- Collaborate with local Solar Energy Industry Association (SEIA) chapters to assist in removing market barriers, strengthen the solar industry and educate the public on the benefits of solar energy.
- Create relationships with State Energy Offices. The American Recovery and Reinvestment Act of 2009 allotted money to State Energy Offices to promote energy-related programs.
- Host a workshop to increase public awareness and interest in solar technology.
- Distribute materials created by U.S. DOE or other entities that are specifically crafted for different stakeholder groups.
- Create a working group or committee to identify the current regulatory, policy and incentive framework in order to accurately assess the changes necessary to advance solar energy in your region.

Who else is doing it?

- The Green River Area Development District (GRADD) organized the Green Living Symposium, a one day workshop on nurturing sustainability on the local level. The event brought together local advocates and stakeholders to encourage discussion on local sustainability efforts. For more information, see the GRADD profile on page 13 of this *Guide*.
- The Delaware Valley Regional Planning Commission (DVRPC) established an Alternative Energy Ordinance Working Group, which convened local leadership to compile resources supporting the development of small scale alternative energy systems. For more information see the DVRPC case study on page 32 of this *Guide* or visit http://www.dvrpc.org/energyclimate/aeowg.htm.
- The Mid-Ohio Regional Planning Commission (MORPC) created the Center for Energy and Environment to bring together greenways, sustainable growth, energy efficiency and air quality programs, and stakeholders that serve the region's needs and visions. For more information, see the MORPC profile on page 14 of this *Guide* or visit http://www.morpc.org/energy/center/main.asp.
- The San Diego Association of Governments (SANDAG) was instrumental in the creation of the California Center for Sustainable Energy (CCSE), an independent nonprofit organization that fosters public policies and provides programs, services and information that facilitates the adoption of clean and renewable energy technologies and practices in the San Diego region. For more information, see the SANDAG profile on page 21 of this *Guide* or visit http://energycenter.org/index.php.

Where can I get more information?

- The Interstate Renewable Energy Council's (IREC) *Connecting to the Grid* provides information on state level interconnection standards. For more information, visit http://irecusa.org/wp-content/uploads/2009/11/Connecting-to-the-Grid-Guide-6th-edition.pdf.
- IREC's Model Net Metering Rules provides state level model net metering policies. For more information, visit http://irecusa.org/wp-content/uploads/2010/08/IREC_NM_Model_October_2009-1-22.pdf.
- The U.S. Department of Energy's (DOE) *Solar Powering Your Community: A Guide for Local Governments* is a comprehensive resource created to assist local governments and stakeholders in designing and implementing a strategic local solar plan. The guidebook includes a section on improving utility policies and processes on page 81-96. http://www4.eere.energy.gov/solar/sunshot/resource_center/sites/default/files/solar-powering-your-community-guide-for-local-governments.pdf

Tool #3:
Integrating Solar into Existing Activities

What is it?

Integrating solar energy within other regional plans (e.g., regional energy plan, emergency preparedness plan, long range transportation plan, economic development strategy, sustainability plans, or development of regional impacts checklist) can meet multiple goals.

By incorporating solar into a regional plan, planners can coordinate the community's efforts and reach common goals more easily. Including solar into your regional plans can also show your region's commitment to advancing renewable energy sources and help build the foundation to secure future resources and political will to accomplish solar goals.

How do you do it?

- Identify solar as a key economic driver in your region by creating or supporting policy that bolsters regional solar investment.
- Establish rules and regulations facilitating solar energy development.
- Consider identifying public and private stakeholders willing to implement strategies outlined in your regional solar plan.
- Create the position of Regional Solar Energy Coordinator, designate a committee or coordinate with a public-private agency willing to implement solar policies and plans.
- Promote Solar in Development of Regional Impacts (DRI) by including solar roof access, photovoltaic (PV) street and recreational area lighting, among others. DRIs can also direct that developers must provide information on solar hot water heaters and PV to potential home buyers and allow them to select those options.
- Consider including solar within emergency or transportation planning. For example, solar can be used as backup for traffic controls and emergency radios.

Who else is doing it?

- The Solar Roadmap, provides resources, best practices and guidance on incorporating solar into regional plans, including permitting, inspection planning, zoning, interconnection, financing and market development. For more information, visit http://www.solarroadmap.com/.
- The Southwest Florida Regional Planning Commission (SWFRPC) has successfully promoted solar within their Development of Regional Impacts review requirements for the past 37 years. For more information, visit http://www.swfrpc.org/dri.html.
- The Pima Association of Governments, (PAG) in partnership with the City of Tucson and Clean Energy Corp developed the Greater Tucson Solar Development Plan which promotes the development of solar in their region. For more information, see the PAG case study on page 26 of this *Guide*. or visit http://www.pagnet.org/documents/solar/SolarDevPlan2009-01.pdf.
- The Metropolitan Washington Council of Governments, (MWCOG) incorporated solar into their Climate Action Plan to support the region's reduction of greenhouse gas emissions. For more information, visit http://www.mwcog.org/environment.
- Berkeley, CA includes solar provisions within their Climate Action Plan. For more information, visit www.ci.berkeley.ca.us/ContentDisplay.aspx?id=19668.

Where can I get more information?

- The American Planning Association's (APA) *Planners Energy and Climate Database*, provides examples of the incorporation of solar within regional and local plans. www.planning.org/research/energy/database/
- The U.S. Department of Energy's (DOE) *Solar Powering Your Community: A Guide for Local Governments* is a comprehensive resource created to assist local governments and stakeholders in designing and implementing a strategic local solar plan. The guidebook includes a section on including solar in broader regional planning efforts on page 20-22. http://www4.eere.energy.gov/solar/sunshot/resource_center/sites/default/files/solar-powering-your-community-guide-for-local-governments.pdf

Tool #4:
Model Ordinances

What is it?

Model solar ordinances provide regions with a framework to facilitate the protection and promotion of solar energy resources in various municipalities.

Model solar ordinances can contain helpful implementation strategies, including but not limited to:
- laying out siting requirements for solar;
- outlining safety requirements for solar installations; and
- establishing provisions to maximize solar access.

How do you do it?

- Survey your local governments to better understand their solar ordinance needs.
- Form a subcommittee or assign staff tasked with this project.
- Review model ordinances completed by other regional councils (see *Who else is doing it?* box below).
- Develop a model ordinance and make it specific to your region. Many model ordinances can be easily adapted to fit your regional requirements. Add guidance about how local communities can customize the model ordinance to fit their needs.
- Issue a public review and have the model ordinance reviewed by an attorney and your regional Board, if necessary.
- Edit and finalize the model ordinance.
- Market and disseminate information online, and through workshops and/or webinars.

Who else is doing it?

- The Tri-County Regional Planning Commission (TCRPC) developed a model solar energy systems ordinance which includes multiple ways to regulate an aspect of a solar energy system, regulate the installation and operation of solar and thermal energy facilities, and can be adopted as a whole or in sections. For more information see the TCRPC profile on page 18 of this *Guide* or visit
  http://www.tcrpc-pa.org/assets/adeptiv/upload/attach/Solar%20Energy%20Systems.pdf.
- The Delaware Valley Regional Planning Commission (DVRPC) has developed a series of model Alternative Energy Ordinance Frameworks, which provide resources on citing, permitting and funding alternative energy systems for solar, geothermal and wind. For more information, see the DVRPC case study on page 32 of this *Guide* or visit www.dvrpc.orv/energyclimate/.

Where can I get more information?

- The American Planning Association has a Solar Energy Essential Info Packet and Inquiry Answer Service are both great resources to learn more about updating codes and ordinances.
  http://www.planning.org/research/solar/
- The Columbia Law School's Center for Climate Change Law has prepared a model small-scale solar ordinance. https://www.law.columbia.edu/null/download?&exclusive=filemgr.download&file_id=59609
- The APA compiled examples of solar access ordinances nationwide.
  http://www.planning.org/pas/infopackets/open/pdf/30part3.pdf
- The County of Santa Clara, California compiled examples of zoning ordinance standards for solar electric generating facilities. http://www.sccgov.org/sites/planning/PlansPrograms/Solar/Documents/solar-power-and-land-use-in-SCC-final-for-Website.pdf
- Massachusetts' Department of Energy Resources provides guidance for providing as-of-right siting in designated locations for renewable/alternative energy generation, research and development, or manufacturing facilities. http://www.mass.gov/eea/energy-utilities-clean-tech/green-communities/gc-grant-program/criterion-1.html

Tool #5:
Training and Certification

What is it?

Installer certification indicates that your region is keeping pace with national standards developed by a large base of stakeholders. Certification can result in safer and higher performance installations as certified installers typically demonstrate a higher level of competency and a commitment to excellence than non-certified installers. Using nationally recognized programs relieves municipalities of the need to create their own certification standards.

A trained code official promotes safe solar installations and can expedite the inspection process saving money. An uneducated code official could potentially approve an improperly installed solar system, putting the safety of the building occupants, system owners, the public and others at risk.

How do you do it?

- Coordinate with an organization providing solar training and education. These organizations can include local universities, colleges and training institutions. See below for some national examples.
- Collaborate with your region's solar industry representatives to identify what is needed to develop a safe installation process.
- Set up a training course for code officials or installers to collaborate with communities within your region.
- Work with state code and standards to determine whether continuing education credit can be offered for training. Offering credits provides an extra incentive to attend training.
- Educate the community about the value of using certified installers.
- Consider sharing a solar permitting and inspection department within the region.

Who else is doing it?

- The Pima Association of Governments (PAG) hosts the Southern Arizona Solar Standards Board, which is designed to encourage quality solar installations in the region by providing a list of accredited solar installers, promoting best practices and educating the general public about solar installations. For more information see the PAG case study on page 26 of this *Guide* or visit http://www.solarstandards.org/.
- Dubuque is the first city in Iowa to implement a city-wide solar thermal installation ordinance, mandating that all installers must be either NABCEP (National American Board of Certified Energy Practitioners) certified or have successfully completed and passed the Solar Thermal Installation course and performed two installations. For more information, visit http://www.ecia.org/pdf/publications/ECIA-E-Newsletter1-12.pdf.

Where can I get more information?

- The North American Board of Certified Energy Practitioners offers a national certification program for solar installers. http://www.nabcep.org/
- The Solar Instructor Training Network supports high-quality training through offering expert instruction and top training facilities within select educational institutions in their regions. http://www1.eere.energy.gov/solar/sunshot/instructor_training_network.html
- Electronics Technicians Association provides training and certification for alternative energy installers. http://www.eta-i.org
- The Interstate Renewable Energy Council's Best Practices & Recommended Guidelines for Renewable Energy Training document provides resources to assist in solar training. http://irecusa.org/wp-content/uploads/2009/10/BestPracticesFormatted2010Final2410.pdf
- The U.S. Department of Energy's *Solar Powering Your Community: A Guide for Local Governments* is a comprehensive resource created to assist local governments and stakeholders in designing and implementing a strategic local solar plan. The guidebook includes a section on code official training and installer licensing and certification on page 72-79. http://www4.eere.energy.gov/solar/sunshot/resource_center/sites/default/files/solar-powering-your-community-guide-for-local-governments.pdf

Tool #6:
Solar Mapping

What is it?

Solar mapping can be used as an effective tool to raise awareness and interest in solar energy in your region. Solar maps provide a portal for connecting residents and businesses with local solar installers as well as financing information. Depending upon the mapping software, maps can estimate the generating capacity and cost of a solar installation by neighborhood, by block or even on the rooftop of a particular building.

How do you do it?

- Identify what type of mapping software would be required based upon the needs of your region and the preferred level of detail.
- Determine whether the map can be created in-house. If the map must be outsourced, find a vendor with solar mapping expertise.
- Create an inventory of any existing solar installations in your region.
- Create links on the map to solar financing information. If desired, provide site-specific financing information.
- Develop a database of recommended local installers and provide links to them on the map.
- Link web tracking software with the map to count the amount of people using the site.
- Link the map with the National Renewable Energy Laboratory's (NREL) Open PV Project, which tracks solar installations throughout the country.
- Consider using the map to publicly track progress towards a stated installation target.

Who else is doing it?

- The Denver Regional Council of Governments developed a solar map that displays the solar capacity for an individual site and connects residents and businesses with local solar installers. For more information see the DRCOG case study on page 28 of this *Guide* or visit http://solarmap.drcog.org/.
- The City of Houston, TX developed an interactive solar map, which includes photos and case-study information on individual solar installations around the city.
  http://www.solarhoustontx.org/LEEP/Experience/InteractiveMap/tabid/1164/Default.aspx
- San Francisco, CA designed a web-based solar tool to assess a rooftop's solar potential and any related economic or environmental benefits that would result from installing solar on that site. For more information, visit http://sf.energymap.org.
- New York City's solar map shows the solar energy potential for every building within New York's five boroughs in addition to displaying the city's real-time solar production. For more information, visit
  http://www.nycsolarmap.com.
- Boston, MA developed an Interactive GIS Map indicating the active renewable energy installations within the city and also providing the ability to calculate the solar potential of building rooftops. For more information, visit http://gis.cityofboston.gov/solarboston/#.

Where can I get more information?

- The National Renewable Energy Laboratory's (NREL) Open PV Project tracks solar installations throughout the country. http://openpv.nrel.gov
- NREL's In My Backyard tool estimates the PV array production based upon a site's system size, location and other variables. http://maps.nrel.gov/imby
- NREL created an analysis of web-based solar PV mapping tools. The report identifies and analyzes several web-based solar mapping tools based upon various criteria.
  http://www.nrel.gov/analysis/analysis_tools_tech_sol.html
- The U.S. Department of Energy's *Solar Powering Your Community: A Guide for Local Governments* is a comprehensive resource created to assist local governments and stakeholders in designing and implementing a strategic local solar plan. The guidebook includes a section on including solar mapping on page 120-122.
  http://www4.eere.energy.gov/solar/sunshot/resource_center/sites/default/files/solar-powering-your-community-guide-for-local-governments.pdf

Tool #7:
Streamline Permitting and Inspection Processes

What is it?

Streamlining a region's permitting and processes for solar installations can reduce costs and confusion by providing clearly defined requirements, expedited processing for solar installations and the option to submit paperwork online.

Standardizing permitting requirements within a region can help communities to pool resources by sharing permit inspection staff.

Implementing streamlined permitting also showcases the region's commitment to solar within their communities and creates opportunities for growth in the region's solar market.

How do you do it?

- Understand each community's solar permitting and inspection process.
- Create an easy to understand outline of the solar permitting and inspection process in your region.
- Simplify permit application forms and the review process. Consider allowing for online submissions.
- Standardize permitting procedures in all communities in your region. Consider working with local utilities to provide incentives to encourage communities to adopt the permitting procedures.
- Consider allowing over-the-counter building permits for standard residential solar energy systems.
- Allow document exchanges to be conducted by company representatives. Some jurisdictions require licensed electricians pick up permits; this can place an unnecessary burden on installation firms.
- Host a workshop to educate building and electrical inspectors about solar technologies and installations.
- Publicize an easy to understand, step-by-step explanation of the permitting and inspection process.
- Establish a clear communications path between code enforcement offices and the local utility provider to expedite the interconnection and inspection processes.

Who else is doing it?

- The Mid-America Regional Council's (MARC) *Solar Ready KC Initiative* identified best management practices for permitting process and planning improvements. For more information, see MARC's case study on page 38 or visit www.marc.org\environment\energy\solar_ready_kc.html
- Boston, MA recently released the *Solar Boston Permitting Guide* as a resource for business and residences interested in installing solar and describes the city's new streamlined permitting rules for solar PV installations. For more information, visit http://www.cityofboston.gov/images_documents/Solar%20Boston%20Permitting%20Guide%20NEW%20Sept%20 2011_tcm3-27989.pdf
- The Long Island Unified Solar Permitting Initiative (LIUSPI) created standardized and expedited permitting for solar rooftop and solar hot water systems in Long Island. For more information, see the LIUSPI case study on page 23 of this *Guide*.

Where can I get more information?

- The Solar America Board for Codes and Standards addresses solar codes and standards issues. http://www.solarabcs.org
- SolarTech released a revised electrical diagram and guidelines for residential PV to help expedite the solar permitting process. http://irecusa.org/wp-content/uploads/2010/09/TUCC_Policy_11_Standardized_PV_guide_revised_070810-1.pdf
- SolarTech also released a "Top 10 List" for expedited permitting, available here http://solartech.org/permitting/56-top-10.
- The Vote Solar Initiative houses resources on solar permitting. http://votesolar.org/city-initiatives/project-permit/
- SunRun produced a report exploring how streamlined permitting can make solar more affordable. http://www.sunrunhome.com/solar-lease/cost-of-solar/local-permitting/
- Brook's Engineering's *The Expedited Permit Process for PV Systems: A Standardized Process for the Review of Small-Scale PV Systems* report provides a detailed overview of the standardization process for small-scale PV systems. http://www.brooksolar.com/files/Expermitprocess.pdf
- The U.S. Department of Energy's (DOE) *Solar Powering Your Community: A Guide for Local Governments* is a comprehensive resource created to assist local governments and stakeholders in designing and implementing a strategic local solar plan. The guidebook includes a section on streamlined permitting on page 67-71. http://www4.eere.energy.gov/solar/sunshot/resource_center/sites/default/files/solar-powering-your-community-guide-for-local-governments.pdf
- The National Renewable Energy Laboratory released *Updating Interconnection Screens for PV System Integration*, which provides short and long-term solutions that allow for increasing solar deployment levels in a safe and reliable manner. http://www.nrel.gov/docs/fy12osti/54063.pdf

Tool #8:
Regional PACE Programs

What is it?

The Property Assessed Clean Energy (PACE) program is a financial model used by municipalities to help make solar more affordable. PACE programs provide building owners and lenders the ability to finance the upfront costs of an energy investment such as solar panels through a property tax repayment method, which maintains the repayment with the property even if it changes hands. This allows property owners to receive low-interest finance options from their local municipality with long-term loan repayment periods. Because of the regulatory uncertainty surrounding PACE programs on the local level, regional planning organizations stand to play an important role in providing these energy investment incentives within their jurisdictions.

Benefits of the PACE program include: offering a loan attached to the property and not the individual (and thereby transferrable); the potential to deduct the loan interest from federal taxable income as part of the local property tax deduction; and savings to property owners on energy costs while paying for their solar energy system, usually resulting in a net gain.

How do you do it?

1. Determine whether or not there is local authority to administer PACE in your region.
2. Consider issuing a Request for Proposals (RFP) to hire an outside consultant with expertise in PACE program financing.
3. Develop a financing structure that provides enough revenue to cover the principal and interest payments, administrative costs and a reserve fund to cover participant delinquencies. Look at existing bond authorities or establish partnerships with finance and investment firms to raise private investments.
4. Engage a committee to develop policies and procedures for the PACE program. Include such details as: which jurisdictions will participate, qualifications, terms, application processes, penalties and marketing.
5. Determine where the administration of the program should be housed and clearly delineate all stakeholders' roles. A regional planning organization is well positioned to serve as the main point of contact or lead convener for the project.
6. Educate local installers, applicable committees or workgroups, and consumers on the benefits of the program.
7. Market and disseminate information online and through workshops and/or webinars.

Who else is doing it?

- Western Riverside Council of Governments (WRCOG) in California developed a regional-scale model PACE program for energy efficiency and water conservation. For more information see the WRCOG case study on page 24 of this *Guide* or visit http://www.wrcog.cog.ca.us.
- The Sonoma County Energy Independence Program in California provides local property owners to finance energy efficiency, water efficiency and renewable energy improvements through a voluntary assessment. For more information, see the Sonoma County on page 19 of this *Guide* or visit http://www.sonomacountyenergy.org/.

Where can I get more information?

- The Database of State Incentives for Renewables & Efficiency (DSIRE) provides a list of state, local, utility and federal incentives and policies promoting renewable energy and energy efficiency, including PACE programs. http://www.dsireusa.org/
- The U.S. Department of Energy's (DOE) Weatherization and Intergovernmental Program provides information on the status of the Pilot PACE Financing Programs. http://www1.eere.energy.gov/wip/pace.html
- PACENow's mission is to promote the use of PACE programs to increase energy retrofits nationwide. The website provides a wealth of information about PACE programs. http://pacenow.org/
- The University of California, Berkeley's *Guide to Energy Efficiency & Renewable Energy Financing Districts for Local Governments* covers issues such as financing, marketing, legal issues, and program administration for PACE programs. http://rael.berkeley.edu/sites/default/files/old-site-files/2009/FullerKunkelKammen-MunicipalEnergyFinancing2009.pdf
- The U.S. Department of Energy's *Solar Powering Your Community: A Guide for Local Governments* is a comprehensive resource created to assist local governments and stakeholders in designing and implementing a strategic local solar plan. The guidebook includes a section on PACE programs on page 41-45. http://www4.eere.energy.gov/solar/sunshot/resource_center/sites/default/files/solar-powering-your-community-guide-for-local-governments.pdf

Tool #9:
Collaborative Procurement

What is it?

Collaborative procurement provides the opportunity for local governments, communities or regions to collaborate together to negotiate a reduced rate for solar installations. Collaborative procurement can result in reduced up-front costs of solar installations, overall savings due to site aggregation, administrative cost savings and favorable contract terms. Collaborative procurement can help regions reach their solar energy goals faster by accelerating solar purchases. Regional planning organizations can play the important role of convener or the main point of contact.

How do you do it?

- Convene Interested Stakeholders through open calls for participation.
- Consider issuing a Request for Proposals (RFP) to hire an outside consultant with expertise in solar collaborative procurement.
- Conduct Feasibility Studies to evaluate the economic and technical capacity for a solar installation on each interested site.
- Facilitate Stakeholder Review and approval to proceed from any involved elected officials and agencies.
- Bundle Sites by Scale to facilitate the procurement of a lower price per watt.
- Utilize the Procurement Process to evaluate solar system installers, negotiate prices and contract terms, and receive Board approval.
- Contract to finalize the system design, construction, planning, project permitting and system commissioning.

Who else is doing it?

- The U.S. Environmental Protection Agency's Green Power Partnership's *Metro DC Clean Energy Collaborative Procurement Initiative* facilitates the collaborative procurement of solar in the Metro DC region. For more information, see the collaborative procurement case study on page 34 of this *Guide* or visit, http://www.epa.gov/greenpower/index.htm.
- The Silicon Valley Collaborative Renewable Energy Procurement Project created a large-scale initiative intended to serve as a replicable regional example of collaborative procurement. For more information, see the Silicon Valley profile on page 20 of this *Guide* or visit http://www.jointventure.org/index.php?option=com_content&view=article&id=189&Itemid=287.
- The Merrimack Valley Planning Commission (MVPC) is implementing a collaborative RFP process after administering feasibility studies on several sites throughout the region. For more information, see the MVPC case study on page 30 of this *Guide.*

Where can I get more information?

- The World Resources Institute's *Purchasing Power: Best Practices Guide to Collaborative Solar Procurement* provides in-depth examples of commercial and government led collaborative procurement.
  http://pdf.wri.org/purchasing_power.pdf
- The Houston-Galveston Area Council created www.HGACBuy.org, an online resource for collaborative procurement within a number of programs. While the site does not contain information on solar, it can be used as a guide for the establishment of collaborative procurement programs by a regional council in general.
- The U.S. Department of Energy's *Solar Powering Your Community: A Guide for Local Governments* is a comprehensive resource created to assist local governments and stakeholders in designing and implementing a strategic local solar plan. The guidebook includes a section on group purchasing on page 49-50.
  http://www4.eere.energy.gov/solar/sunshot/resource_center/sites/default/files/solar-powering-your-community-guide-for-local-governments.pdf