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Integrating Solar PV and Distributed Renewable Energy Policies and Programs into California City and County General Plans

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Integrating Solar PV and Distributed Renewable Energy Policies and Programs into California City and County General Plans

December 2014

Center for Law, Energy & the Environment (CLEE)[1]

University of California Berkeley School of Law

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1. Introduction

1.1 Objectives of this Guidance

Local governments are the primary permitting entities for renewable energy generation facilities in California.[2] Despite the recent surge in the renewable energy market, California's diverse communities are at different stages in establishing planning and permitting programs, and all communities can work to facilitate faster development of this vital sector.

Production of renewable energy can benefit local communities both economically and environmentally. Increased renewable energy generation helps achieve clean energy goals, such as the state requirement to produce 33% of electricity from eligible renewable sources by 2020.[3] Local government planning and permitting practices can significantly reduce the time and financial cost of implementing distributed renewable energy technologies, such as solar photovoltaic (PV) that may comprise the majority of the 33% target.

The Center for Law, Energy and the Environment (CLEE) at the UC Berkeley School of Law prepared this guidance document, with model general plan policies, for the Governor's Office of Planning and Research (OPR). The goal is to help local governments streamline their permitting processes for two types of distributed renewable energy projects:

- Small-scale (generally less than 10 kilowatt [kW] in total capacity) solar PV systems on commercial and residential rooftops and parking lots (referred to in this document as ancillary use projects); and

- Medium-to-large-scale, ground-mounted solar PV projects, (generally between 10 kW and 20 megawatts (MW)) that use most or all of a site for the generation of electricity for offsite uses, such as for whole sale to electricity retailers (referred to as primary use projects).

Project developers and utilities usually connect both types of projects to the distribution grid. However, ancillary projects are so named because they generate electricity primarily for onsite energy use (i.e. they are not the primary use of the parcel), while primary use projects use all or most of the parcel to sell power and energy to the grid. Although solar PV represents the most commonly permitted renewable energy technology at the local level, OPR may update this document over time to address additional renewable energy technologies.

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[2] The California Energy Commission (CEC) has the authority to permit thermal power plants over 50 MW and all hydropower plants, and the California Public Utilities Commission (CPUC) has the authority to permit infrastructure facilities owned and operated by an investor-owned utility (IOU), local governments issue permits for all other renewable energy generation assets on non-federal, non-state, and non-tribal lands.

[3] SB X1-2 (2011, Simitian).

CLEE and OPR intend for this guidance document to be used by city and county planning departments that wish to use general plans to plan for the development and implementation of information resources, policies, and programs that lower barriers to local solar PV permitting and installation and to create incentives for this sector in their communities. The document subdivides best practices for the two project types (ancillary use projects and primary use projects) and contains sample general plan language for both in Section 4. As California is home to a diverse array of communities characterized by different levels of experience and resources to dedicate to increasing solar PV penetration, most general plan language sections include more than one option for planners to consider. Planners can replicate and/or tailor the sample language to their communities' needs.

CLEE also intends for this document to complement OPR's California Solar Permitting Guidebook (2012), which provides a toolkit of best practices for implementing goals and policies to reduce the costs of ancillary solar PV project permitting.[4] The guidance presented here for primary use systems builds upon the California Energy Commission's Energy Aware Facility Siting and Permitting Guide (2011) and the California County Planning Directors Associations (CCPDA) Solar Energy Facility Permit Streamlining Guide (2012).[5] CLEE and OPR released this guidance document in the fall of 2014 based on the most up-to-date data, publications, and analyses available at the time.

1.2 The Regulatory Context for Local Permitting of Solar PV

1.2.1 Inventory of existing plans, ordinances and policies

Communities can best achieve regulatory development objectives by allowing local planners to undertake a detailed review of existing regulatory structures and analyze the gaps and barriers that pertain to solar PV system permitting. Specifically, ancillary and primary use system regulations must be consistent with a community's:

- General Plan;
- Specific or Area Plans;
- Airport Land Use Compatibility Plans;
- Land Conservation Act of 1965 (AB 2117, Williamson) (Williamson Act) and Farmland Security Zone Act of 1999 (SB 648, Costa) (Farmland Security Zone Act) Rules;
- Local Coastal Plan/Program Compliance and Coastal Development Permit;
- Zoning codes;
- Encroachment permits for work in a public right-of-way;
- Project developer business licenses;
- Financial agreements;

[4] Solar Permitting Work Group, California Governor's Office of Planning and Research. California Solar Permitting Guidebook (2012).

[5] Suzanne Phinney, Emily Capello, Patricia Cole, Ruth Darling, Brian Fedrwo, Emi Kiyan, and Eric Nguyen. Energy Aware: Facility Siting and Permitting Guide (2011). http://energy.ca.gov/2009publications/CEC-600-2009-013/CEC-600-2009-013.PDF; California County Planning Directors' Associations' Solar Energy Facility Permit Streamlining Guide (2012) http://www.ccpda.org/en/component/docman/doc_view/139-ccpda-sef-permit-streamlining-guide-2012-02-03.

- Development agreements; and
- Grading and building permits.

This guidance document lists important questions to ask during policy gap analyses for ancillary and primary use systems in Sections 3.2 and 4.2, respectively.

1.2.2 What can and can't local governments do?

Local governments are the lead agencies in California for permitting wind, solar PV, and other non-thermal renewable energy facilities, as well as all thermal facilities under 50 MW in rated capacity, such as geothermal wells.[6] However, local governments face certain restrictions in permitting ancillary use systems. Generally, local governments must permit small-scale ancillary use solar PV systems "by-right" (i.e. using an administrative, non-discretionary permit application review process) and may not deny a use permit for an ancillary solar energy system, unless "it makes written findings based upon substantial evidence in the record that the proposed installation would have a specific, adverse impact upon the public health or safety, and there is not a feasible method to satisfactorily mitigate or avoid the specific, adverse impact." (Gov. Code §65850.5(c)).[7] Furthermore, under AB 1801 (Campos, 2012) local government permit fees for all system types must be commensurate with the actual costs of permit review and inspection. SB 1222 (Leno, 2012) caps fees set by installed capacity for both standard size and larger size ancillary use systems on residential and commercial properties, unless the local government makes specific findings to justify higher fees. Under AB 2188 (Muratsuchi, 2014), local governments must by ordinance create an expedited permit application and review and inspection process for residential rooftop ancillary solar systems under 10 kW in size – see sections 2.2.1-2.2.4 for more information on developing these tools. Otherwise, local governments have autonomy to tailor primary use facility permit approval conditions to local needs.

Local government agencies also play an advisory role in permitting ancillary and primary use systems on federal, state, and tribal lands and for siting distribution and transmission facilities that deliver renewable energy facility electricity to the grid. Local governments with control over publicly owned utilities (POUs) will have a greater ability to impact transmission and distribution line projects within the utility's service territory by coordinating planning decisions with the board of the POU.

1.2.3 What other players are involved?

Table 1 reviews the permitting authorities for ancillary use solar PV installations.

Table 1: Permitting Authorities for Ancillary Use Solar PV Projects

Agency	Common Permitting Requirement

[6] "Rated capacity" refers to the theoretical maximum sustained power output capacity of a generation facility under optimal operating conditions.

[7] These legal requirements and others contained within the California Solar Rights Act (AB 3250, 1978) are extensively detailed in The Energy Policy Initiatives Center at the University of San Diego School of Law. California Solar Rights Act: A Review of the Statutes and Relevant Case Law (2012 update), http://www.sandiego.edu/law/centers/documents/centers/epic/SolarRightsAct_UPDATEDec2012.pdf.

Building Department	• Solar PV rooftop plan review for building code, electrical code, and energy code compliance • Solar PV installation inspection and approval
Fire Department	Fire safety inspection
POU or Investor Owned Utility (IOU)	Interconnection agreement

Table 2 outlines the permitting authorities for primary use solar PV projects on private lands.

Table 2: Permitting Authorities for Primary Use Solar PV Projects on Private Lands[8]

Agency	Common Permitting Requirements
Local Government	• California Environmental Quality Act (CEQA) Environmental Impact Report (EIR) review and certification or issuance of a Negative Declaration • Ministerial, minor, major, and conditional use permit requirements
CPUC or POU Board of Directors	Approval of any required transmission or distribution equipment
United States Fish and Wildlife Service*	Federal Endangered Species Act Section 10a or 7a permit
California Department of Fish and Game**	California Endangered Species Act Incidental Take Permit or Natural Communities Conservation Plan
POU or California Independent System Operator (CAISO)	Small or Large Generator Interconnection Agreement

* Assumes presence of a species listed under the Federal Endangered Species Act.
** Assumes presence of a species listed under the California Endangered Species Act (CESA); CESA Consistency Determination may be applicable.

As indicated in Tables 1 and 2, local governments often have significant opportunities to consolidate permitting processes for ancillary use solar systems, but permitting primary use solar systems and their supporting infrastructure will require coordination with many non-local government agencies.

[8] Suzanne Phinney, Emily Capello, Patricia Cole, Ruth Darling, Brian Fedrwo, Emi Kiyan, and Eric Nguyen. Energy Aware: Facility Siting and Permitting Guide (2011). http://energy.ca.gov/2009publications/CEC-600-2009-013/CEC-600-2009-013.PDF.

2. Ancillary Use Solar Projects Policy Toolbox

An ancillary use solar project is the installation of solar-powered electricity or heat generation equipment that is not the primary use of a parcel. The term "ancillary use solar project" as used here approximates the definition of a "solar energy system" established by the California Solar Rights Act (Civil Code §§ 801.5(a)(1)–(2)).[9]

Local governments can greatly influence the market for ancillary use systems in their community due to the cost impacts of local-level permitting processes. The concurrent development of publicly available information resources for interested parties during the promulgation of an AB 2188-compliant residential rooftop streamlined permitting ordinance can be the primary means for all California communities to pursue solar energy-related goals.

2.1 Establishing a Comprehensive Suite of Ancillary Use Permitting Policies and Actions

Local governments can improve solar permitting policies and practices by strategizing to ensure that goals and priorities are commensurate with financial and administrative limitations. Local planners can establish goals to frame policy development, such as reducing implementation costs and increasing transparency, efficiency, and predictability. Planners can achieve these goals by reducing process hurdles and fee burdens in the pre-permitting, permitting, and inspection periods. In addition, planners can work with other relevant authorities and neighboring jurisdictions to increase coherency between permitting and inspection processes.

Increasing transparency is the most important strategy for reducing obstacles in the pre-permitting phase. Before applicants apply for a permit, they should be able to go to a single location on the planning office's Internet website that provides access to a comprehensive assortment of community-specific tools, guidebooks, bulletins, and general information fact sheets. These resources should clearly establish permitting requirements by providing application forms, checklists, and sample plans and

[9] The definition of a solar energy product in Cal Civil Code Section 801.5(a)(1)-(2) places no size limit on systems, their means of implementation platform (rooftop or ground-mounted), or their relationship to the use of the parcel (ancillary or primary). University of San Diego School of Law research indicates that the legislative history behind a recent amendment to the California Solar Rights Act "arguably suggests that Section 801.5(a)'s definition of a solar energy system is intended to apply only to consumer distributed generation systems. In a 2000 bill which revised Section 801.5(a)'s definition of "solar energy system," the Legislature declared that "low polluting disturbed generation resources, installed on customer sites, can reduce customer costs of energy . . . and provide customers with improved reliability in the event of an electricity outage." 2000 Cal. Stat. ch. 537, sec. 801.5, § 1(b). Furthermore, the same bill defined "distributed generation" as "any onsite generation, interconnected and operating in parallel with the electricity grid, that is used solely to meet onsite electric load." Id. at sec. 25620.10, § 4(i)(3))". See Scott Anders, Kevin Grigsby, Carolyn Adi Kaduk, Taylor Day, and Allegra Frost, California Solar Rights Act: A Review of the Statutes and Relevant Cases (updates 2012), https://lib.sandiego.edu/law/documents/centers/epic/SolarRightsAct_UPDATEDec2012.pdf.

diagrams, if available, as well as other information useful to interested parties. Best practice communities' websites also commonly offer means for property owners to assess the costs and benefits of installing an ancillary use solar system, such as cost-savings calculators and solar resource maps. Under AB 2188, ancillary use system permitting checklists must be available to the public on the community's official website. This requirement can give local officials a foundation to build a more robust set of guidance documents to be listed on the same website, including application instructions, application templates, and other information resources for community members interested in solar.

Increasing efficiency is the most important goal in the permitting phase. Applicants should be able to use a standardized, ancillary use solar system application for common system types. They should also have the option to submit this application to permitting authorities via multiple channels, including e-mail, an online submission form, or an in-person process for designated simple and standardized systems that may be eligible for same-day approval. AB 2188 requires a local government to allow for electronic application submission unless it makes specific findings as to why electronic submission is unavailable at the promulgation of the streamlining ordinance. Application reviewers should give feedback on inadequate applications within short timelines with a concise explanation of what applicants can do to pass subsequent reviews. Per state law, permit application fees should cover only the costs of permit review, installation inspection, and overhead. SB 1222 sets specific caps for permitting fees by system size. The Sierra Club of Northern California has created a knowledge resource and calculator to calculate the actual cost of ancillary solar system installations that local governments can use to gauge and consider adjusting current fees.[10] AB 2188 requires that any application requiring approval is reviewed and responded to within 45 days of submission.

Increasing efficiency is the most important goal in the inspection phase. After a local government grants a permit and during the inspection phase, system installers and owners should become well-informed of system inspection processes before inspection, receive an inspection soon after installation is complete, select inspection times that accommodate their scheduling needs, and easily coordinate multiple inspections, if necessary. Inspectors should have requisite training, give timely notice and concise feedback as to whether projects passed inspection, and detail the reasons for inspection failure. SB 1222 requires that small rooftop systems eligible for expedited review are inspected once in the case that the local government has an agreement with the fire authority to consolidate inspections, or two in the case of local governments that have not signed such an agreement.

Increasing coherency is a primary concern for communities that want to further reduce developer costs. Planners can multiply the cost-reduction benefits of efficiency and predictability by coordinating permitting procedures with relevant permitting authorities, surrounding jurisdictions, and the local utility.

[10] Sierra Club, "Reducing Local Barriers to the Installation of Solar Power Systems in California," http://lomaprieta.sierraclub.org/climate-action/solar_permit_fees. Accessed Aug. 25, 2014.

These policy strategies are briefly described below. Supportive sample general plan language tied to each policy strategy is provided in Section 4.2.

2.2 Conduct a Regulatory Gaps Analysis

A policy gaps analysis can expedite the development of new general plan policies and implementing regulations. Local jurisdictions can use these guidelines to conduct such an analysis that incorporates the perspective of installers, permit review staff, and building inspectors. Ancillary and primary use system permitting procedures and outcomes must comply with:

- The General Plan;
- Specific or area plans in the project area;
- Airport Land Use Compatibility Plans (if in an Airport Referral Area);
- Land Conservation Act (Williamson Act) and Farmland Security Zone Act Rules (if lands are in an Agricultural Preserve);
- Local Coastal Plan/Program Compliance and Coastal Development Permit (if in a Coastal Zone);
- Zoning codes;
- Encroachment permits (for work in a public right-of-way);
- Business license of the project developer;
- Financial agreements;
- Development agreements; and
- Grading and building permits.

Planners should ask the following questions in a gaps analysis:

- **Land use restrictions in the community:**
  - Are ancillary use solar PV installations allowed on all zoning designations?
  - Are there community planning priorities that would justify the exclusion of ancillary use solar systems any areas?
- **Availability of information about the costs and benefits of solar to the community:**
  - Does the community have a solar calculator tool to help property owners assess the costs and benefits of installing an ancillary use system?
  - Does the community provide a list of local solar installers?
  - Does the community provide the public with contact information for the specific staff or office responsible for solar rooftop permit reviews?
- **Ancillary use solar PV system application process:**
  - Can citizens interested in ancillary use solar installations access a centralized information resource with specific solar project application guidance?
  - What are the most common reasons why PV system applications are rejected and/or amended, and what should new information resources focus on to reduce these deficiencies?
  - Does the community have an ancillary solar PV system-specific permit application for both residential and commercial systems, and if not, could errors be reduced by developing one?
  - Are multiple agencies involved in permitting ancillary use PV systems; if so, are there opportunities to coordinate permitting processes between agencies?

    - Does the community have a maximum permit review time ordinance?
    - Does the community designate certain simplified systems for expedited and/or template-based permitting?
- **Ancillary use solar PV system inspection process:**
    - How are inspection appointments requested and responded to?
    - How long is the time window for inspection appointments?
    - Are multiple inspections required and by what agencies?
    - Do installers know what to expect during inspections?
    - How are inspectors trained and are they sufficiently knowledgeable?
- **Regional coherency and inter-agency cooperation:**
    - Are building inspection processes aligned and coordinated with electrical safety, fire safety, and interconnection inspection processes?
    - Do local fire safety codes discuss ancillary use solar PV systems?
    - Does the community have structures in place to coordinate permitting policy development with neighboring jurisdictions?

2.2.1 Maximize pre-permitting information availability

Regulatory transparency creates a positive market response to existing and new regulations, incentives, and outreach efforts. General plan language should establish the goal of consolidating all local codes and regulations that pertain to ancillary use solar PV system permitting into a single information resource available on the planning or building department website. Under AB 2188 (Muratsuchi, 2014), ancillary use residential system permitting checklists must be developed by ordinance, which presents an opportunity to create checklists for other types of systems, such as commercial rooftop and parking lot systems.

2.2.2 Simplify permit applications and expedite application review

Best practice jurisdictions with efficient ancillary use solar PV system permitting suites create a single solar-specific permit application; develop plan templates for simple systems; set maximum permit review times for all reviews; create elective, expedited permitting processes for simple systems (especially those using plan templates); and consolidate permit reviews in a single agency.

More advanced communities are pursuing online permitting systems that allow permits to be completed and submitted via email or an online form. SB 1222 requires all communities to reduce permitting fees for solar systems within legislatively determined limits. Under AB 2188, local governments must expedite ancillary use system permitting processes for all systems that meet the small residential system permitting checklists developed under the ordinance and reviews are limited to 45 days from time of submission for permits requiring approval.

Using available resources, local governments should be able to develop streamlined permitting process within one year, between inception and formalization through an ordinance, and the effort may not entail the need for additional staff.[11]

[11] Interview with Truong Huynh, City of Long Beach Acting Superintendent of Building and Safety, August 22, 2013.

2.2.3 Increase inspection predictability

Ancillary use solar PV systems commonly undergo three inspections: building department inspections (for both structural and electrical safety elements), fire safety inspections (if separate from building department inspections), and local grid interconnection inspections. Best practice jurisdictions have increased the predictability of inspection processes by offering installers and homeowners options on scheduling inspections and giving specific time windows for when inspections will occur. AB 2188 requires that ancillary use system inspections under the control of the local government be consolidated to a single inspection in jurisdictions with agreements with local fire officials and two in jurisdictions without such agreements. Some communities have hired commercial project installers and experts to train residential system inspection staff.[12] Others have used training modules provided by the National Training and Education Resource and Interstate Renewable Energy Council (IREC) for local government staff inspectors.[13]

Interconnection inspections may be required as well, but are outside of the control of planning offices and therefore not discussed here in detail. For communities with POUs, local leaders should work with the POU's board to coordinate interconnection inspections with building inspections. Communities served by IOUs will need to continue to issue final inspection certificates before the IOU will undertake an interconnection inspection.

2.2.4 Increase regulatory coherency among agencies and with neighboring jurisdictions

As discussed above, local governments do not have exclusive jurisdiction over all permitting processes for ancillary use solar PV systems. Planners should therefore coordinate proactively with fire departments/protection districts and utilities on permit processes. Local installers and vendors will also benefit from improved coordination of ancillary use permitting suites with neighboring jurisdictions. Some communities launched their solar programs by first surveying neighboring jurisdictions.[14]

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[12] Interview with Truong Huhnh.

[13] See National Training & Education Resource, *Photovoltaic Online Training For Code Officials: FREE COURSE*, https://www.nterlearning.org/web/guest/course-details?cid=402. *See also* Jane Pulaski, *Press Release: Online Solar Training for Code Officials Now Available through Innovative Technology* (Oct. 1, 2012), http://www.irecusa.org/2012/10/online-solar-training-for-code-officials-now-available/.

[14] Interview with Truong Huynh.

3. Activities to Support Primary Use Solar Projects

Developers install primary use solar projects on a parcel with the purpose of producing electricity for sale to the grid or some other external party, rather than for consumption onsite. Developers generally ground-mount the solar panels and equipment, for a total generation capacity that is typically larger than that of ancillary use projects.

Most communities in California that have created a solar PV primary system-specific permitting process require a minor use, major use, or conditional use permit for primary use systems, depending on zoning designation and project size, with requirements differentiated by specific zoning designations. Some communities have used overlay zoning to create a new zone on top of existing designations that allows for primary use systems. No community allows primary use systems in all zones. Zoning designations should clarify the requirements for minor, major, or conditional use permits, while general plan language should address the impacts of primary use systems on other general plan element topics.

A comprehensive discussion of primary use systems in the general plan should be based on a community audit to identify the highest-priority areas for such systems. In the territory of IOUs, Distribution Resources Plans required under AB 327 (Perea, 2013) that identify optimal electricity grid locations for distributed renewable generation resources, due in July 2015, will facilitate these resource audits.

3.1 Supporting Primary Use Systems While Prioritizing the Conservation of Land Resources

Planners can develop a successful primary use solar PV permitting program by tailoring it to community characteristics in a transparent, efficient, and predictable manner. Planners can increase transparency by:

- Developing a GIS-based map characterizing areas of the community according to their fit as primary use installation sites;
- Engaging with an informed local community that participates in the ordinance development process and implementation; and
- Conducting a quantitative assessment of how increased implementation of renewable energy can promote the community's planning goals, including those related to reducing carbon dioxide emissions, increasing local renewably generated electricity, conserving valuable land resources, growing the market for local labor, and others.

Planners can increase permitting efficiency by:

- Ensuring that informed and empowered local agency staff have sufficient time and authority to play an active role in ordinance development and implementation, as well as to provide structured support to permit applicants during project development.

Planners can increase predictability with:

- A singular permitting ordinance that clearly identifies zoning designations suitable for primary use systems and the minor use, major use, or conditional use permitting processes for each zoning type;
- Zoning codes that are consistent with this ordinance; and
- Consideration of regional and state pursuits of common community goals.

3.2 Regulatory Gaps Analysis

As with ancillary use systems, primary use system projects must be consistent with:

- The General Plan;
- Specific or area plans in the project area;
- Airport Land Use Compatibility Plans (if in an Airport Referral Area);
- Land Conservation Act (Williamson Act) and Farmland Security Zone Act Rules (if lands are in an Agricultural Preserve);
- Local Coastal Plan/Program Compliance and Coastal Development Permit (if in a Coastal Zone);
- Zoning codes;
- Encroachment permits (for work in a public right-of-way);
- Business license of the project developer;
- Financial agreements;
- Development agreements; and
- Grading and building permits.

Questions to ask during a regulatory gaps analysis for primary use systems include:

- Which zoning designations allow for primary use solar PV systems currently? Are they solar or energy facility specific, or are these designations more generic (i.e. zoned for industrial development)?
- How much community land is zoned to these designations?
- What is the current process for permitting a primary use solar PV project in zones that allow for it?
- What restrictions or siting standards for primary use solar systems are in place regarding protecting view sheds, farmlands, open space, and other land conservation areas?
- Has the community created any guidance or zoning regulations that pertain to siting transmission lines?
- Does existing general plan language in the land use, conservation, open space, safety, or any other element specifically concern energy production facilities, renewable energy production facilities, transmission lines, or solar power?
- Does the community have policies or programs to partake in regional or state-level electricity transmission or distribution system planning activities that impact the community?

Resources

In 2011, Alameda County undertook a regulatory gaps analysis for the siting of primary use solar PV systems in rural county areas. County staff used the findings to generate highly specific, tailored policy language necessary to preserve community planning priorities while allowing the continued development of the sector. This high-quality resource was then used by the Alameda County Board of Supervisors to review policy options and determine a path forward.

3.3 Community Audits for Primary Use Systems

A community land and resources audit assesses current land uses, characteristics, and zoning designations to find areas best suited to primary use solar development; identifies needed zoning code changes; and creates siting standards that minimize impacts on sensitive resources. Furthermore, audit databases can later inform how the community and project developers select desirable project types and locations and how future critical infrastructure is planned.

Planners should inventory renewable energy generation potential, transmission access, distribution network access and upgrade plans, land topographic restrictions, and land use restrictions with overlay maps (preferably stored in a GIS database) that identify and grade parcels in the community based on their primary solar use development potential. Planners should then compare a consolidated map to existing zoning regulations and other regulatory documents to determine whether renewable energy facilities are developable on the highest potential value parcels. Distribution Resources Plans, required for IOUs by July 2015 pursuant to AB 327, may facilitate resource audits.

The most useful audits will measure and characterize:

- Existing electrical infrastructure;
- Renewable resource availability; and
- Sensitive land uses.

If a community lacks the capacity to undertake these audits before a general plan revision, it can call for such an audit for future development within the goal, policy, and implementation activities of the general plan.

Resources

The resources audit undertaken for the County of Inyo's Renewable Energy General Plan Amendment in late 2013 and early 2014 exemplifies a thorough resource audit and opportunities and constraints analysis.

The CEC produced a guidance on the general process of conducting a community energy audit.

4. General Plan Language to Support Solar PV Ancillary and Primary Use Systems

Planners can use general plan language to:

1. Preserve and advance community development priorities while easing permitting of ancillary and primary use systems;
2. Spur the development of a database that identifies current regulations and areas of the community best suited to primary use systems (not necessary for ancillary use systems as they should be permitted by-right in all zoning designations);
3. Create sufficient staffing and other resources to enable efficient compliance with all applicable state and federal laws and undertake cooperative efforts with regional, state, and federal government agencies that are locally active in the sector; and
4. Establish the mechanisms by which the local government will fund regulatory activities and guide the development of local financial incentive measures.

4.1 Integrating Solar into Community Planning Priorities

To develop a supportive renewable energy policy platform within general plans, local government leaders should begin with a regulatory gaps analysis and resource audits to develop goal statements that identify increasing distributed renewable energy generation as a means to achieve community planning priorities.

Renewable energy-supportive general plan goals may discuss improving PV permitting as a means to pursue a number of outcomes, such as increasing energy security, reducing carbon emissions, promoting local and regional economic development, reducing municipal operating costs, conserving land and environmental assets, and reducing air pollution. Thorough general plans contextualize solar energy goals within the community's current energy use by including discussion of the amount of energy consumed in the community, the mix of fuels used to produce that energy, information about existing installed solar capacity, and how policy improvements might improve solar uptake and energy fuels.

4.1.1 General Plan Language for Communities Ready to Establish Solar PV-related Goals

Some communities will be able to establish goals for solar energy development within their general plan preparation process. The following exemplify quantitative and qualitative goals to support sample general plan policy and implementation measures.

Sample General Plan Language for Communities Ready to Establish Solar PV-related Goals

Sample Goals:

- [X kW] of primary-use solar PV systems have been sited in [the City or County] by [20XX] in a manner that supports the conservation of sensitive land resources.
- The communities receives [X%] of electrical power from solar PV by [20XX].
- Government facilities in [the City or County] receive [X%] of their energy consumption from [on-site] solar PV systems.
- New solar PV energy systems have reduced the environmental impacts of electricity consumption in [the City or County], including [reducing CO_2 emissions related to energy consumption by X% by 20XX].
- Siting decisions for new solar PV projects optimally mitigate the environmental, agricultural, biological, and recreational resource and human health impacts associated with such development.
- Solar PV projects on [City or County] facilities and lands effectively showcase the application of outstanding, innovative, and locally developed renewable energy technologies and practices, demonstrate the effectiveness of these technologies, and highlight [the City's or County's] energy leadership.

Communities that develop a quantifiable target for solar PV-based electricity generation should explain the assumptions behind the target. For example, planners might phrase a statement as, "[The City or County] has 600 acres of rooftop space; if 10% of this space was converted into solar panels; [the City or County] could be producing 30 MW of electricity from our rooftops alone, or enough power to provide electricity to 22,500 homes."[15]

4.1.2 General Plan Language for Communities Not Yet Prepared to Establish Solar PV-related Goals

Planners in communities that lack the capacity to undertake a comprehensive solar potential assessment within the general plan development process should plan to seek resources to construct a data-based summary of the community's existing energy production and use and how solar development plans may impact these characteristics. Planners should begin by reviewing current electricity use and then establishing the assumptions used to predict future growth scenarios. Best practice communities use community electricity consumption audits to establish quantified targets for renewable energy penetration within set timeframes.

Jurisdictions may want to look to Butte County's discussion of energy growth assumptions as a template, using the following assumptions as the foundation of current growth projections:

- Electricity demand is expected to grow in the future at a rate of [2–3% per year].

[15] Based on the assumption that one MW of solar energy production requires approximately six acres of land and can provide electricity for around 750 homes.

- Electricity produced from solar PV facilities will become cost competitive with electricity from other sources as technology advances, costs decrease, and costs of other energy sources increase.
- It is assumed that approximately [X MW] of solar PV generation will be developed in [the City or County].
- It is assumed that [the City or County] will retain a leading role in guiding and regulating development of solar resources in [the City or County].
- It is assumed that potential negative impacts to people or environmental, agricultural, biological, and recreational resources from solar PV projects can be mitigated with adequate site standards designed to mitigate impacts.

Sample General Plan Language For Communities Planning on Conducting a Solar Assessment Post General Plan

Sample Policy :

- [The City or County] shall develop the resources necessary to amend solar PV project permitting procedures and zoning codes so that they are tailored to solar project type and technology to facilitate transparent, predictable, efficient, and cost-effective PV system permitting.

Implementation Measures:

- Prepare a community-wide [Solar/Alternative Energy] Promotion Study that will:
    - Identify possible sites and resources for the production of energy using local renewable resources such as solar, [wind, small hydro, geothermal, and biogas].
    - Evaluate land characteristics, environmental, economic and other constraints affecting [solar/renewable] energy development.
    - Identify measures to protect and develop supportive infrastructure such as utility easements, rights-of-ways, and land set-asides without negatively impacting sensitive land uses and environmental assets.
    - Evaluate permit processes for approval of ancillary- and primary-use solar energy systems.
- Amend solar PV project permitting procedures to include:
    - The creation of efficient permitting and review procedures appropriate to the issues presented by different types of solar PV projects;
    - Zoning codes that facilitate reduced and expedited permit review requirements for ancillary use solar PV project types.
    - Primary use project permitting that allows efficient permitting on high-priority lands with clear and concise site and development standards required for a minor, major, or conditional use permits.

Resources

The County of Butte's General Plan includes a description of the typical energy consumption profile of the county, using generalized California proxy data unspecific to the county provided by the CEC. The energy profile then discusses the County's accomplishments in implementing renewable and alternative energy systems, including solar PV systems.[16]

The City of San Diego's Solar Energy Implementation Plan begins with a detailed overview of the city's energy consumption and the types of energy sources the city relies on, the implications of these characteristics (primarily with respect to energy prices), and state solar goals and policies and their estimated impact on the city's solar implementation efforts.

4.2 Land Use Element

The land use element should include policies to establish universal administrative permitting in all zones for ancillary use systems, as well as policies and measures to increase the transparency, efficiency and predictability of permitting regulations. For primary use systems, the land use element should establish goals and policies for rezoning high-value locations for primary use PV projects, developing siting standards and project character-dependent permitting processes to mitigate negative impacts, ensuring the continuance of current incentive programs and measures, and creating new ones. Maps presented in this element should highlight lands that are currently zoned for primary use systems and lands that will be rezoned for such systems.

4.2.1 Sample General Plan Language to Support Ancillary and Primary Use Solar PV Systems

Communities that want to support ancillary use solar PV systems should begin by allowing ancillary systems to be constructed and used in any zoning designation. In response to the California Solar Rights Act of 1979 (specifically Cal. Gov. Code § 65850.5), which limits the ability of local governments to prevent the installation of ancillary use systems,[17] most communities have established a non-discretionary, administrative or ministerial permit review process for ancillary systems on all land uses in all zones. To the degree the information is available, planners should include renewables-favoring zoning code changes to be implemented after general plan promulgation on the Land Use map.

The following Sample Land Use Element Language is divided into two parts for ancillary and primary use solar PV. Although AB 2188 requires much of these measures to be implemented by ordinance for residential rooftop systems, communities can use the following general plan language to expand upon this ordinance to develop additional resources to assist parties interested in residential rooftop systems and to pursue similar resources, zoning code revisions, and implementation measures that are facilitate the development of ancillary use systems on commercial rooftops and parking lots.

[16] Butte County General Plan, pp. 223-226.

[17] See Footnote 9 for an explanation of the uncertain application of the Solar Rights Act to primary use systems.

Sample Land Use Element Language for General Support of Ancillary Use Systems

Sample Policies:

- [The City or County] shall enable ancillary use solar PV systems of [a certain size and character] to be permitted by-right in all land use zones in a way that ensures installations are safe and support other community planning priorities.
- **Ancillary Use Pre-Application Transparency:** [The City or County] shall prioritize developing information resources to enable property owners, installers, and technicians to easily access the permit application and inspection requirements for ancillary use solar PV installations, and property owners and renters to understand the specific costs and benefits of ancillary use solar PV installations.
- **Ancillary Use Application and Permitting Efficiency:** [The City or County] shall enable a streamlined process for the administrative permitting of ancillary use solar systems within all zoning designations.
- **Ancillary Use Inspection Predictability**: [The City or County] shall work to establish a time-efficient and cost-effective ancillary use solar PV system inspection process that minimizes inspection time windows, consolidates multiple inspection requirements into a singular inspection process, promotes compliance with toolkits that detail inspection processes, and guarantees that inspection staff are well-trained.
- **Coordination with Others**: [The City or County] shall work cooperatively with agencies that have concurrent jurisdiction over the permitting of ancillary solar PV systems in the community to reduce permitting costs and timelines, and will participate in regional efforts to coordinate ancillary use solar installation permitting practices.

Implementation Measures:

General

- Promulgate a solar permitting ordinance that creates a streamlined solar specific permitting process for all ancillary use solar PV systems and stipulates the permitting processes necessary for primary use systems in all applicable zoning designations.
- Amend zoning codes to allow ancillary use solar PV systems to be permitted by-right in all zoning designations.
- Design and promulgate building codes applicable to ancillary use solar PV system installations that reflect and uphold community priorities regarding height limits, setbacks, safety, and other community planning priorities. Allow deviations from building development standards such as height limits or setbacks when doing so is necessary to allow for the efficient implementation of solar PV system components.
- Continue current programs regarding local financial incentives and planning assistance for solar energy projects.
- Investigate new solar PV incentive programs, such as [name incentive programs], for their appropriateness to our community.

Pre-application Transparency Implementation Measure

- Consolidate all information regarding the permitting of ancillary use solar PV installations into a single Internet website hosted on the planning department domain and provide a hard copy package of this information to interested parties in person and by mail request. Documents in this resource will include [copies of all codes and ordinances applicable to rooftop solar installations, checklists and model plans applicable to rooftop solar installations, hard-copy and electronic solar-specific permit applications, contact information for planning staff, links to other

agencies that are involved in the rooftop solar PV installation permitting process, information about incentives offered by [the City or County], utilities, and state and federal agencies, and guidebooks and information resources for installers].

- Compile a list of local installers and vendors of solar equipment and make this list available to the public through the planning department website.
- Dedicate general funds or pursue grant funding to purchase or develop a solar energy calculator and mapping tool that identifies: existing solar PV [and solar water heater installations] in [the City or County], calculates every parcel's rooftop PV potential, calculates electricity bill savings, CO_2 reductions, up-front costs, and provides information about incentive and financing options. Dedicate staff to the development of case studies to be added to this tool to indicate variance in expected costs and benefits for certain representative systems.

Improving Permitting Efficiency Implementation Measures

- Create an ancillary use solar PV system-specific permit and plan templates for standardized systems. Establish maximum permit review times for all ancillary solar PV system reviews, consolidate permit reviews among agencies to the extent possible, and expedite permitting for designated standardized systems.
- Create a permit application specific to all ancillary use solar PV systems tailored to [the City or County] that consolidates all permitting information requirements into a single application and allows expedited permitting for compliant systems.
- Adopt the means for ancillary solar system developers to submit relevant permits online via the planning department's online permitting web portal or via email.
- Consolidate ancillary use solar PV system permit reviews by eliminating unnecessary permit processes and consolidating permit approval authority in a single staff position or department.
- Create an expedited over-the-counter ancillary use solar PV system permitting process for standardized systems.
- Align ancillary use solar PV system permitting fees with state laws that set maximum permitting fees and require permitting fees to be commensurate with actual permitting and inspection costs.

Increasing Ancillary Use Inspection Predictability Implementation Measures

- Work with all relevant permitting agencies, including local government, fire, and utility permitting authorities to consolidate inspections to the degree feasible into a singular one-time inspection after installations have been completed.
- Implement an ancillary use solar PV system inspection process that specifies a maximum [2 hour] inspection window for [City or County-required] inspections.
- Implement an ancillary use solar PV system inspection scheduling process that lets installers and owners remotely request convenient inspection appointment times and receive confirmation of building, electrical, and fire inspection appointments within [48 hours].
- Create a guidance document that clearly describes the inspection process for ancillary solar PV systems and make this document available to the public so that installers can better ensure installations will pass inspections.
- Adapt existing public resources to create a comprehensive ancillary use solar PV system inspector training program tailored to [the City or County's] inspection process.

Coordination with Others Regarding Ancillary Use Systems Implementation Measures

- Work with [fire departments or fire protection districts] to adapt and promulgate by ordinance

the California Fire Marshal's suggested fire-safety related ancillary use solar PV system permit requirements into local building codes.

- Work with electric utilities to coordinate interconnection agreement-related inspections with building permit and inspection processes to the maximum extent feasible.
- Proactively participate in regional ancillary use solar PV permitting coordination activities by dedicating sufficient staff and general fund resources to ensure participation.

Sample Land Use Element Policy and Implementation Measures for Primary Use Systems

Sample Policy:

- Primary use solar PV system permit applications in [Prime Agriculture, Agricultural Services, Timber Mountains, Industrial, and Public] land use designations shall be considered upon the submission of minor, major, or conditional use permit applications to ensure that significant adverse environmental impacts associated with such development can be successfully mitigated.

Implementation Measures:

- Promulgate a solar permitting ordinance that clearly establishes the permitting requirements for all primary use systems in all applicable zones.
- Maintain an updated Land Use Ordinance that includes the most current permitting regulations for primary use solar projects and related definitions.
- Continue current programs regarding local financial incentives and planning assistance for primary use solar PV projects.
- Investigate new solar PV incentive programs, such as (name incentive programs), for their appropriateness to our community.

Resources:

General:

The CCPDA's model solar energy facility permit streamlining ordinance (the Model SEF Ordinance) is a high quality resource that communities should look to when creating a comprehensive permitting ordinance for ancillary use and primary use projects. The Model SEF Ordinance and guidance documents designate zoning code changes and administrative, minor, and conditional use permitting processes for both ancillary and primary solar installations under 20 MW, give a concise set of policy language and a comprehensive list of site standards requirements appropriate to four tiers of solar installations for 16 different land uses and 11 different use/size combinations. See Section 4.9.1 below for more information on developing a similar ordinance.

The County of San Diego's Zoning Code Section 6952 (adopted by Ord. No. 10072 N.S., adopted 9-15-10) stipulates permitting procedures by zoning designation for both ancillary and primary use systems. Ancillary systems (referred to as "onsite uses") are allowed as an accessory use to all Agricultural, Civic, Commercial, Industrial and Residential use types in all zones, in accordance with requirements regarding setbacks, height, permitting information requirements, and additional requirements for systems in Special Area Designations.

Pre-application Period Transparency Resources

The Interstate Renewable Energy Council has published a model permitting checklist and a model inspection checklist for communities to use.

Other resources include:

The County of Alameda's Solar Fact Sheet

City of San Diego's Development Services Department's Residential Solar PV Systems

City of San Jose's list of Solar Permits and Fees

City of Berkeley's Solar PV System Submittal Requirements

The County of Sacramento's Submittal Checklist for Online Residential PV Systems

A comprehensive list of solar maps and calculators produced by California cities and counties can be found at the California Energy Commission and CPUC's Go Solar California website. Santa Clara County also produced high-quality solar resource assessment maps. These calculators have been specifically tailored to California's climate, electricity, and gas prices, as well as incentive programs.

A California-wide database of solar installers, contractors, and retailers is available from the CEC and the CPUC's Go Solar California effort. The database is searchable by company type, company name or location, and type of system (solar PV, wind, fuel cell, or geothermal). This resource can be a starting place for composing a community-specific catalog of installers.

Improving Permitting Efficiency Resources

OPR's guidebook on ancillary system permitting includes several model documents, including a permitting checklist and standard plans for single-family home systems that can be easily implemented by California cities and counties.

The Solar ABC Initiative produced a detailed guidebook for the use of standardized plans to expedite permitting for ancillary use systems. The Solar ABCs model has proven exceptionally popular and many cities have adapted it for their permitting processes.

The Sierra Club established a roadmap for undertaking solar PV permitting fee assessments.

The City of San Diego's expedited permitting process allows for over-the-counter review of applications that use plan templates for residential rooftop PV projects. Plan templates can be used for a residential PV project when installed on a sloped roof if the panel weighs five pounds per square foot or less. When the three completed plan templates are submitted with the manufacturer's specifications for all equipment, the project qualifies for over-the-counter same-day review and slightly reduced permit fees.

Increasing Ancillary Use Inspection Predictability Resources

The City of San Diego, California, offers the Residential PV Systems Inspection Guidelines to clarify permit inspection processes that includes a checklist-format outline of the requirements fo inspections by system, responsibilities of the parties within the inspection process, safety-related inspection job site requirements, requirements for service equipment, rooftop PV array installation requirements, wiring and box requirements, inverter and disconnect requirements, and overcurrent and utility disconnect requirements. A similar guideline is offered by the City of San Jose in the form of the Solar PV System: 2010 California Electricity Code Residential Inspection Checklist.

OPR's guidebook on ancillary system permitting includes a sample memorandum of understanding that cities and counties can use to coordinate and align reviews by building and fire inspection authorities.

The Interstate Renewable Energy Council's guidebook can be used to facilitate the expedient inspection of small-scale PV systems. The Interstate Renewable Energy Council offers free training for both code officials and PV system installers on its guidance.

Coordination with Others Regarding Ancillary Use Systems Resources

In 2012, Solar Sonoma County and over 50 collaborators published the Sonoma County Solar Implementation Plan that detailed the goals, market barriers, and recommendations for standardizing the permitting of ancillary use PV systems in all jurisdictions in the county. The report establishes justifications for the standardization effort, created goals and objectives, reviewed barriers and resources, and established strategies and actions regarding policies and regulations, financing and incentives, education, and market transformation. The outcome of the effort is a website that lists all permitting requirements for each jurisdiction in the county in a standardized format that links to guidelines, standard applications, permitting fees, and other requirements and informational resources.

In September 2010, community representatives, scientists, and academics leading the East Bay Green Corridor effort began the process of standardizing the permitting of solar PV installations in eight city jurisdictions as well as developing a standard-plan based expedited permitting process. The results have been made available on the East Bay Green Corridor's website, and the participating city websites refer interested parties to this database for permitting information in their city.

The Vote Solar Initiative's Project Permit website gives an overview of the ancillary system permitting practices in many California communities and can be used as a quick reference for communities interested in knowing to degree to which neighboring jurisdictions have implemented best practices in this guidance.

The DOE-sponsored Solar Roadmap project gives tailored advice to communities desiring to improve solar permitting process, supported by a team of experts. The roadmap requires the completion of a short survey and allows users to benchmark and track community progress towards clean energy and economic development goals by streamlining solar permitting, educating buyers and supporting more effective decision-making, supporting the vendor community, improving access to financing tools and programs, accessing peers who are facing similar issues, quantifying potential impacts of expanding

renewable energy generation, accessing training, and measuring progress.

Primary Use Solar Permitting Resources

Title 21 of the Inyo County Code exemplifies a high-quality permitting ordinance that encourages and regulates the development of renewable energy resources within Inyo County. This ordinance shows how one community has adjusted and simplified the CCPDA Model SEF Ordinance to local needs and may be a good comparative document for jurisdictions considering simplifying the CCPDA template.

4.3 Circulation Element

A general plan's circulation element should directly discuss issues regarding identifying and securing the infrastructure necessary to deliver renewable energy to the grid. The circulation element should incorporate a discussion of transmission corridor selection and siting decisions that mitigate impacts on:

- Biological resources;
- Visual resources;
- Cultural resources;
- Agricultural lands; and
- Airport lands.

To ensure that lands that become the site of new corridors maintain value, cities and counties should consider zoning codes that accommodate ancillary uses that are compatible with transmission and distribution lines. In addition, as transmission and distribution line siting is not solely a local issue, jurisdictions should affirm their commitment to regional and state-level cooperation for future siting activities.

4.3.1 Circulation Element General Plan Language

Sample General Plan Language:

Sample Policies:

- To support community goals for the development of distributed renewable systems, [the City or County] shall ensure that relevant infrastructure siting authorities have sufficient information to know of the community's preferred siting locations that maximize renewable energy interconnection opportunities, reduce costs for renewable energy developments, and preserve sensitive lands when siting electricity transmission and distribution infrastructure.
- [The City or County] shall encourage appropriate secondary land uses (such as nurseries, RV storage, and useable open space and parks, among others) in zoning codes pertaining to overhead transmission facility rights-of-way, when appropriate. Trails can also be included as a secondary land use, pursuant to agreement with [the local utility].

Implementation Measures:

- Require all transmission and distribution lines to be located in designated federal and other energy facility corridors such as those owned by investor-owned utilities and merchant power companies, transportation corridors, and other infrastructure corridors. In doing so, prioritize the reuse of existing easements and rights-of-way and follow field boundaries for electricity transmission lines.
- Investigate creating a new preferred transmission corridor zoning designation to accommodate additional transmission capacity.
- Develop transmission infrastructure siting standards that minimize impacts on environmental, agriculture, wildlife, urban areas, and recreational activities for areas designated for future transmission corridors.
- Make a map of [the City or County's] preferred transmission corridors available to utilities and other agencies with jurisdiction over transmission and distribution siting.
- Develop procedures to ensure that utility transmission corridor plans are periodically reviewed and [City or County] staff are aware of and communicate [City or County] priorities in transmission and distribution planning projects for which other governmental agencies are lead agencies or an approving authority.
- Identify, in conjunction with utilities, merchant power companies, government agencies and other stakeholders, prospective joint use corridors for transmission and distribution lines that mitigate environmental, agricultural, biological, human, and recreational resource impacts.

4.4 Conservation Element

While renewable energy production offers numerous environmental benefits, the projects can create negative impacts on local environments. Conservation Elements should incorporate these concerns in discussing renewable energy goals.

Conservation element policies can discuss the conservation benefits of renewable energy in two ways: the promotion of renewable energy as a means of promoting sustainability and the strategic identification of assets that offer opportunities for the development of ancillary and primary use solar PV projects, such as with new construction, brownfields and public buildings and lands. It is important to note that most ancillary project permitting decisions will be exempt from undertaking CEQA review under SB 226 (Simitian, 2011). However, ancillary use projects that entail impacts on endangered and protected species or native trees, as well as all primary use projects, will require CEQA analysis, either through an Environmental Impact Report (EIR), mitigated negative declaration, or negative declaration. Primary use renewable energy project developers who are planning projects should therefore be aware of requirements for mitigating negative impacts on visual, environmental, agricultural, biological, and recreational resources and human health. To give developers a clearer view of necessary mitigation measures and to reduce costs during CEQA review, local governments can develop siting standards that explicitly state the means of reducing negative impacts of primary use developments.

4.4.1 Conservation Element General Plan Language to Promote Sustainability

Planners can reuse the general goals for integrating distributed renewable energy into a general plan, as discussed in Section 4.1 above, to outline a community's sustainability goals in expanding solar PV penetration.

The primary means of supporting sustainability goals through solar sector development is to reduce regulatory hurdles and develop incentives for ancillary solar projects. The Conservation Element can incorporate the policies and programs necessary to increase the transparency, efficiency, and predictability of ancillary use permitting processes discussed in Section 4.2.1.

In addition, several measures can spur deployment of solar PV and other renewable technologies, including incorporation of renewable energy systems within new and retrofit construction, the use of solar PV systems on municipal facilities, and the development and implementation of green power purchasing schemes. These options are discussed below.

Private Building Policies

The Conservation Element can link the development and enforcement of new building energy and related codes and standards with solar PV development. Voluntary solar design guidelines can encourage new construction that includes the structural and electrical features necessary to facilitate the implementation of solar PV panels in the future if the owner chooses to do so. Implementation measures to support these policies can take different forms depending on community characteristics. Jurisdictions that have weaker new construction markets and lower new construction profit margins

may want to consider undertaking an exploratory study of the effects of mandatory renewable integration in new construction before requiring it by law. Other communities have created voluntary building standards that developers can look to as an easy resource to incorporate PV-readiness into new homes. Finally, some communities have promulgated solar-ready ordinances that require a certain generation capacity per unit in new residential construction, differentiating minimum capacities by building type.

Sample General Plan Language:

Sample Policies:

- [The City or County] shall support the integration of solar PV systems and access to solar resources into new construction to the maximum extent feasible by integrating solar PV system requirements into building codes.
- Developers shall give homebuyers the option of incorporating solar PV systems into their homes.
- New developments shall be designed to maximize the solar orientation and access of new homes.
- New commercial and industrial projects greater than [25,000 square feet] shall meet [a portion of their energy needs] through on-site renewable energy generation. This requirement can be met through a solar roof, solar water heaters, or other means.

Implementation Measures:

- Conduct a market study to explore the market feasibility of requiring solar systems in new residential and non-residential construction.
- Develop solar design guidelines for new residential and commercial construction that guarantee solar access for a maximum number of units in new subdivisions.
- Amend the building code to address requirements for solar energy access and use [on single family homes, multifamily homes, etc.].
- Adopt pre-wiring and pre-plumbing standards for solar PV and solar hot water systems through a 'solar ready' ordinance that allow owners to install a minimum of [X kW per unit] of solar PV capacity at their discretion in the future.

Resources

The National Renewable Energy Laboratory's guide identifies the important aspects of building design and construction that enable the installation of solar PV and heating systems at some point after the building has been constructed. Although primarily for developers, planners can use the guide to develop community-specific solar ready building codes for new construction. A second report detailed the legislative and other instruments that several communities have used to require solar-ready new construction. It includes a model ordinance for new developments to construct solar-ready homes.

San Jose Environmental Services Division's voluntary subdivision design guidelines specify that the long axis of new dwellings should face within 30 degrees west and 45 degrees east of true south. Because houses in a subdivision usually face the street, planners in San Jose found that the easiest way to achieve solar orientation was to orient the streets within 30 degrees of the true east-west axis. The guidelines also include aesthetic concerns such as public visibility and view shed protection.

Lancaster's feasibility study resulted in the development of a residential zoning code that requires all developers to install a certain minimum generating capacity per unit in different types of new construction or buy credits from another installation in the city to ensure the delivery of the same capacity to the city.

Local Government Facility Policies

Local government-owned assets offer many communities a large area of low-cost ancillary and primary system development potential. Opportunities on county or municipal buildings and lands include office building rooftops, parking lots, zoos, schools, libraries, community centers, convention centers, fairgrounds, jails, airports, water treatment plants, landfills, and other assets. As local governments are not tax-paying entities and therefore do not qualify for tax incentives and benefits for installing solar, they often use public-private partnership agreements to enable third parties to finance, build, and operate the facilities.

Sample General Plan Language:

Sample Policies:

- [The City or County] shall use government facilities to showcase the application of outstanding, innovative, and local developed renewable technologies and practices, demonstrate the effectiveness of these technologies and to highlight [the City's or County's] energy leadership.
- [The City or County] shall use new government and public facility construction and renovation opportunities to advance community renewable energy generation goals by incorporating renewable energy into facilities [to the maximum extent feasible; with the goal of supplying X% of the facility's total electricity consumption from solar PV].

Implementation Measures:

- Incorporate where feasible solar energy systems into [City or County] capital improvement projects.
- Develop minimum standards by ordinance for on-site renewable energy generation for all newly constructed [City or County] facilities.
- Support the installation of solar PV systems and other forms of renewable energy production by seeking funding to develop renewable energy projects on public buildings and lands.
- Develop and implement renewable power purchase agreements that commit [the City or County] to purchasing renewable energy from third-party companies who have installed solar PV systems on city facilities.

Resources

The City of San Diego's Sustainable Buildings Policy (Council Policy 900-14) requires all newly constructed city facilities to incorporate a minimum of 15% self-generation using renewable technologies when site factors allow for a reasonable payback.

The California Department of General Services, Division of the State Architect, interpreted requirements for plan review and construction inspection of solar PV and thermal system projects on California public elementary schools, secondary schools, and state-owned or state-leased essential services buildings. Although it requires tailoring to local building codes, this guidance can help local governments that want to ensure building code compliance when integrating solar PV systems with local government buildings as well.

The Department of Energy produced a case study that gives a detailed overview of the City of Sacramento's use of public-private partnership agreements to develop solar installations on public buildings and lands. The city used the program to develop templates for a solar request for a quote, a solar license agreement, and solar Power Purchase Agreement.

Green Power Purchasing Programs and Community Shared Solar

Communities can additionally support sustainability goals by committing the jurisdiction and the POU, if present, to purchase renewably generated electricity to power government buildings and offer residents and businesses renewably generated electricity. See Section 5.1 for details regarding the mechanics of Green Power Purchasing Programs. Another iteration of this type of policy is a Community Shared Solar program that allows residents and business to purchase ownership shares of a locally developed solar electricity facility, with the electricity generation reducing the customer's energy bill.

Sample General Plan Language:

Sample Policies:

- [The City or County] shall institute [a City or County] electricity purchasing policy that give preference to the purchase of renewable energy when feasible.
- [The City or County] shall work with [the local POU] and third party developers to develop a community shared solar program that allows residents to purchase shares or portions of the generated output of a third-party developed facility directly to offset electricity bills.

Implementation Measures:

- Work with [the City or County POU, the IOU, or other third party provider] to develop a green power purchase program that commits the local government to purchasing [X% of expected annual electricity] from [solar PV; renewable electricity generators].
- Work with the [the City or County POU or other electricity providers] to develop a green power purchasing program that allows residents and businesses to voluntarily pay for renewably generated electricity.
- Institute [City or County] purchasing policies that give preference to utilizing renewable energy to power government operations when feasible.
- Work with the [the City or County POU] to develop a renewable portfolio standard goal for [the utility].
- Work with [the POU, IOU] and private third parties to develop a community shared solar site and program [that utilizes government land assets as the site of the shared solar facility].

Resources

The U.S. Department of Energy's national community shared solar program guidebook will help various local community stakeholders understand the benefits of community shared solar programs and work together to develop and implement these programs.[18]

The Interstate Renewable Energy Council model program rules for community-shared solar programs give guidance on developing these programs. The rules address issues such as system size, interconnection, eligibility for community participation, allocation of the benefits flowing from participation, net metering of system production, and other features.

Vote Solar's compendium of shared solar laws in the United States provides many resources and case studies for state and local communities exploring shared solar programs.

"Brownfields to Brightfields"

Local governments can create a program to site solar and other renewable projects on brownfields as a means of conserving land resources and improving the financial appeal of brownfield property. Communities with large-scale underdeveloped land resources should consider both making a list and map of these sites and committing planning department staff time to begin building a cleanup and

[18] U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, A Guide to Community Shared Solar: Utility, Private, and Nonprofit Project Development (2012).

financial assistance program to ready these sites for renewable energy projects.[19] SB 43 (Wolk, 2013), which allows IOU customers to purchase 100% renewable energy from small- and mid-sized solar systems under the new "green tariff shared renewables" program, supports the development of 100 MW of solar projects to be built within communities that are disproportionately affected by environmental pollution and other hazards that can harm the public's health. Brownfields within these communities should represent a large share of these projects.

Sample General Plan Language:

Sample Policy: [The City or County] shall promote the siting of solar PV and other renewable energy projects on brownfields and other former industrial properties.

Implementation Measures:

- Investigate the development of a brownfields rehabilitation program that directly promotes the reuse of brownfield sites for the generation of renewable energy.
- Work with state and federal programs with brownfield rehabilitation programs to ensure local renewable energy-oriented programs are coordinated with these efforts.
- Identify and undertake a study of a brownfield in [the City or County] to determine the potential to redevelop the site into a primary-use solar PV facility.

Resources

The EPA's handbook reviews brownfield-to-brightfield projects and provides tools to help interested parties determine the overall feasibility of siting renewable energy production and some key considerations for integrating renewable energy development during all phases of typical cleanup processes.

The National Association of Local Government Environmental Professionals' guidebook discusses several case studies of brownfield-to-brightfield efforts, giving guidance on determining the suitability of sites, the economic feasibility of projects, and action items that communities can take to promote renewable energy development on brownfields in their communities.

The National Renewable Energy Laboratory's study of the potential to develop a solar PV facility on a site near the San Francisco Bay can help communities develop an assessment of barriers and opportunities for specific brownfield sites.

4.4.2 Conservation Element General Plan Language Regarding Impact Reductions

Three primary means of mitigating the negative impacts of solar projects that local governments should discuss in a general plan include:

[19] California Department of Toxic Substances Control, Brownfields (undated), available at http://www.dtsc.ca.gov/SiteCleanup/Brownfields/index.cfm (accessed Aug. 30, 2013).

- The allowance of ancillary use solar installations in all, or most, zoning codes with an administrative permitting process that allows for application review to protect public health and safety;
- The allowance of primary use solar facilities on the most-appropriate and lowest-impact lands with siting standards that reduce negative impacts on visual, environmental, agricultural, biological, and recreational resources and human health; and
- The conditions under which agricultural lands may be converted to primary use solar PV facilities.

Ancillary Use Systems Siting Standards

Sample General Plan Language:

Sample Policy: Ancillary use solar PV installations shall be permitted in all zoning codes so long as fire and other human health and safety impacts of such systems are sufficiently mitigated through the implementation of solar PV system specific construction standards and building codes.

Implementation measure: Develop ancillary use solar PV siting standards that establish the means to mitigate the fire and public safety impacts of such systems.

Primary Use Systems Siting Standards

Local governments should create siting standards that detail the requirements of the minor use, major use, or conditional use permit applied to primary use solar projects. The California Environmental Quality Act (CEQA) Guidelines allow a community to develop siting criteria as well as mitigation measures required for particular impacts (CEQA Guidelines § 15126.4(a)(2)). Siting standards can protect community land conservation priorities and alert project developers to specific data needed to determine impacts and mitigation measures. This process will result in more complete permit applications and improve review efficiency. Local officials should develop siting standards with direct reference to a community's approved habitat conservation plan (HCP) or a natural community conservation plan (NCCP). In addition, some communities require that any solar facility located in a sensitive habitat or biotic resource identified in a general plan or other planning document record a protective easement that assures the protection of these resources.

Sample General Plan Language:

Sample Policy: Primary use solar PV installations shall be permitted in [stipulated zones] under a [minor use, major use, conditional use] permit so long as the negative visual, environmental, agricultural, biological, human, and recreational resource impacts of such systems can be sufficiently mitigated.

Implementation Measure: Develop primary use solar PV project siting standards that establish mitigation criteria for negative visual, environmental, agricultural, biological, human, and recreational resource impacts of such systems.

In addition, local governments can discuss transmission line siting standards in the Conversation Element. See the discussion of transmission line siting standards in Section 4.2.

Sample General Plan Language:

Sample Policy: The siting of new transmission lines projects shall be, to the extent possible, within designated preferred transmission corridors and compliant with siting standards that mitigate the visual, environmental, agricultural, biological, human, and recreational resource impacts of such projects.

Implementation measure: Develop transmission line siting standards to apply to designated preferred transmission corridors.

Resources

The CCPDA model solar ordinance includes siting guidelines that planners can adapt to a jurisdiction's specific environmental issues, geomorphic issues, and transmission access requirements for projects.

Sonoma County's Solar Energy Facilities – Special Use Standards (Sonoma County Code 26.88.206(E)) include standard mitigation requirements that apply to use permitting processes for primary use facilities.

San Bernardino County imposed a moratorium on commercial-scale solar developments in 2013 to allow for the development of appropriate siting standards. These siting guidelines and requirements were incorporated into the San Bernardino Development Code § 84.29 in December 2013 and represent a high-quality example of various siting requirements for both ancillary and primary use systems.

The CEC's Electric Program Investment Charge (EPIC) program, starting in 2017, will be researching the local environmental impacts of renewable energy technologies, including solar. This research will result in the development of environmental tools and information for the development of future renewable energy conservation plans.

Agricultural Land Conservation and Williamson Act and Farmland Security Zone Act Contracts

Certain constituencies may desire additional guidelines and procedures that pertain to farmland conversion for renewable projects. In some instances, solar energy facilities may be complementary to an existing agricultural use, such as livestock grazing. In such cases, to reduce the need for an agricultural land loss mitigation program under CEQA, the community should create an agricultural land management plan to ensure long-term monitoring and maintenance of the lands' productive capacity.

Special requirements exist for lands that are protected under Williamson Act and Farmland Security Zone Act contracts. Project developers may site solar and wind facilities on contract lands so long as the projects meet one or more of following conditions:

- The use is compatible with contracted agricultural operations as specified in Agricultural Preserve Rules;
- The contact is not renewed; or
- The contract is cancelled.

Local governments formulate their own Agricultural Preserve Rules that govern compatible uses with oversight from the Agricultural commissioner. Determinations of consistency with these requirements occur on a parcel-level basis and require the finding of compatibility by the legislative body of the local government, in consultation with the Agricultural Commissioner or the assigned advisory body.

SB 618 (Wolk, 2011; California Fish & Game Code §§ 2805, 2835, 3511, 4700, 5050, and 5515; California Gov. Code §§ 51190 et seq., Review and Tax Code § 402.1) may allow the jurisdiction to forgo Agricultural Preserve Rules amendments for certain contracted lands. The law enables Williamson and Farmland Security Zone contracts to be rescinded and replaced with 20-year solar easements (or less in some circumstances, but never less than 10 years) on demonstrably marginally productive or physically impaired lands.[20]

Sample General Plan Language:

Sample Policy: [The City or County] shall maintain at least the present level of agricultural production while increasing the production of electricity from solar PV systems on agricultural land.

Implementation measures:

- Investigate the creation of an agricultural conservation easements program that allows conversions of agricultural lands to be offset by in lieu fees and conservation easements that will preserve agricultural lands elsewhere in the community.
- Develop measures to allow the co-location of primary use solar energy facilities on certain agricultural lands where doing so will not reduce the agricultural productivity of the property.
- Review Williamson Act and Farmland Security Zone Act Agricultural Preserve Rules for opportunities to establish compatibility standards for primary use solar systems on certain parcels where doing so will not reduce the agricultural productivity of the property.
- Ensure local compliance with SB 618 by developing a program to facilitate the conversion of Williamson Act and Farmland Security Zone Act contracts into solar easements.

Resources

Planners can find guidance on the implementation of SB 618 at the local level from the California Department of Conservation, which released specific regulations on the law.

Ordinances in Tulare, Kern, Fresno, San Bernardino, and San Diego counties address Williamson Act constraints and other provisions that facilitate permitting for renewable energy systems on Williamson Act lands.

[20] See the newly published official regulations that detail the procedures, fees, standards, and criteria for solar-use easement contracts. California Department of Conservation, Solar-Use Easements Senate Bill 618 (2014), http://www.conservation.ca.gov/dlrp/lca/Pages/SolarUseEasements.aspx.

4.5 Open Space Element

Open space lands can be highly desirable for primary use renewable energy facilities but are also often prized by a community for leisure, recreation, and environmental conservation. General plan policies should aim for a balance between the two concerns with language that allows planners to consider such uses on a case-by-case basis guided by community-developed siting standards.

4.5.1 Open Space Element General Plan Language

Sample General Plan Language:

Sample Policy: [The City or County] shall promote the use of designated open space lands for primary use solar PV projects so long as doing so sufficiently balances the community's open space priorities.

Implementation Measure**:** Develop siting standards and minor, major, or conditional use permit provisions pertaining to the siting of primary use solar PV projects on open space lands.

4.6 Safety Element

The safety element should contain language that specifically references fire protection and defensible space requirements for solar installations and transmission lines. Planners should coordinate with local fire departments before integrating solar fire safety issues into the safety element.

4.6.1 Safety Element General Plan Language

Sample General Plan Language:

Sample Policy: Primary use solar PV installations and related infrastructure shall be permitted only when potential hazards related to fire, flooding, human health and safety, air traffic, and agricultural equipment have been sufficiently mitigated.

Implementation Measure: Develop primary use siting standards and minor, major, or conditional use permit provisions that sufficiently mitigate hazards regarding fire, flooding, human health and safety, air traffic, and agricultural equipment.

Resources

The Office of the State Fire Marshal's Solar PV Installation Guideline contains the optional preparation of standards that fire safety professionals and regulators agree are more likely to guarantee the safety of fire personnel around solar PV systems. However, the standards are voluntary because they are more restrictive than building and fire codes currently required by state law. Some communities have implemented these guidelines into local codes, such as Orange County and San Francisco County. Solar ABCs has a useful document to help understand the State Fire Marshal's Guideline. The National Fire Code contains similar guidelines for ancillary systems.

4.7 Optional Energy and Renewable Energy Elements

Some California communities have created stand-alone energy elements in their general plan to focus the community's attention on issues such as resource extraction, energy-related land uses, and energy project-related economic development. The benefit of a stand-alone energy element is the consolidation of goals, policies, and activities across several different energy fuels and impacts.

Resources

Kern County's Energy Element is a voluntary general plan element that unifies the County's policies and activities under three objectives: resource management and supervision; creating land, resource, and facility development standards to provide for the protection of the environment, public health and safety; and promoting energy resource development. These objectives, developed through planning processes that integrated the community's input, offer a simultaneous focus on renewable sector expansion and protection of land assets, with clear standards that apply to different project types. The Kern County Energy Element addresses several fuel types, including petroleum resources, wind, geothermal, solar, and hydroelectric resource development, as well as transmission lines.

Due to an immense geothermal and solar resource potential, Imperial County integrated a Geothermal/Alternative Energy and Transmission Line Element into the 2006 County General Plan that recognizes the value and inevitability of increased transmission corridor development within the County. The element describes the process to determine the least disruptive corridor route. The goal of the element is to formalize and solidify the county's input into the processes by which transmission corridors will be determined by state and other authorities.

4.8 Community Benefit Considerations

Local governments may want to incorporate a discussion of policies that ensure that the local economy benefits directly from solar PV projects. Developers may argue that doing so may raise costs and slow solar development, and communities will have to balance solar PV and other planning objectives when considering community benefit policies. The most common policies to promote community economic development are permitting eligibility requirements that suggest or mandate project developers hire a certain proportion of labor from the local workforce, which can be beneficial in jurisdictions with strong California community colleges with relevant training courses. Planners can also induce local job growth through the implementation of a Community Benefits program that assesses fees on projects for permanent job losses due to solar development on other sectors, such as losses due to agricultural land turnover when converting farmlands.

Sample General Plan Language:

Sample Policy: [The City or County] shall ensure that solar project development leads directly to local economic benefits by working with project developers to maximize the use of local labor in project development and partnering with local educational institutions to provide high quality solar PV workforce job training to community residents.

Implementation measures:

- Link residential and government facility solar energy installation incentive programs with local economic development by contracting with entities that agree to include local hiring and purchasing requirements in their program implementation plans.
- Encourage the establishment of applicable solar PV installation and maintenance training programs in the local school systems in cooperation with the solar industry

In addition, due to the potential large-scale land use, environmental, and resource impacts of primary use projects, community members should play an ongoing role in the review of primary use project applications.

Sample General Plan Language:

Sample Policy: [The City or County] shall ensure that community members are able to access information about all primary use solar PV project applications and have multiple opportunities to participate and comment on the permit application review process for primary use solar PV projects.

Implementation measure: [The City or County] will provide adequate information about solar project development and opportunities to the public, including publicly accessible databases of permitted projects and lands found to be suitable for projects, public forums to allow information concerning solar development to be circulated between industry, government staff, and the public; and sufficient online and print resources to ensure the public has adequate opportunities to inform themselves of the current status of solar development and express their opinions on the development of the resource.

4.9 Implementing the General Plan Policies

4.9.1 Promulgate a Clear and Concise Ancillary and Primary Use Solar Permitting Ordinance that Expedites Permitting Using Best Practices

After general plan promulgation, communities should consider promulgating a solar permit streamlining ordinance by resolution of the city council or the county board of supervisors.

The CCPDA's Model SEF Ordinance offers a template for the development of a consolidated ancillary and primary use system permitting ordinance. The model ordinance establishes:

- Set-back requirements and height requirements;
- The ongoing need for building permits according to the jurisdiction's existing requirements;
- Right-to-farm ordinance concordance requirements; and
- Easements between multiple-connected parcels.

To mitigate negative project effects, the model ordinance includes:

- Special requirements for floodplains;
- Mitigation measures for visibility of projects of certain types;
- Conformance requirements for development standards in the underlying zone; and
- Differentiations of permitting discretionary reviews based on project type.

In addition, the model ordinance includes stipulations as to when a facility can be considered abandoned and what is required after a finding of abandonment. Whether based on the CCPDA Model SEF Ordinance or built organically by the community, the model ordinance should discuss the following issues:

- Definitions of different technology types and sizes subject to the ordinance's stipulations;
- The permitting processes applicable to different types and sizes of solar facilities, according to zoning designation;
- Setbacks and height limitations;
- Requirements for other permits, such as building and fire safety permits;
- How Williamson Act and Farmland Security Zone Act contract lands are to be treated under the ordinance and existing laws;
- Requirements for easements;
- Additional impact mitigation requirements for special areas, such as floodplains, wetlands, protected lands, scenic areas, cultural and historical areas, Williamson Act contract lands; and special status, threatened, endangered, candidate, or fully protected species areas;
- Requirements regarding decommissioning, such as requiring developers to submit and gain approval for an end-of-life site restoration plan or post bonds to cover abandonment.

4.9.2 Revise Zoning and Create New Zoning Maps

After planners use preliminary audits to identify lands suitable to primary use projects and research and promulgate basic siting criteria by ordinance, local officials will need to codify these changes in zoning code revisions and apply them to particular parcels.

4.9.3 Coordinate with other agencies and utilities and begin agency staff training

Planning departments should continue to coordinate with utilities, state and regional agencies, and local stakeholders after general plan promulgation to ensure that all parties approach future projects with the same understanding of local goals and policies. In particular, as other cities and counties develop similar plans and policies, they should maintain frequent communication to allow for planning additions for supportive infrastructure, such as transmission and distribution lines.

As discussed in Chapter 3, planners should consult existing sources of information and partnerships among a wide variety of agencies. These resources and entities include:

- Utilities and independent renewable power producers operating in the community and in surrounding communities;
- CEC staff and reports;
- Other state and federal agencies, including the CPUC, the California Department of Conservation, California Environmental Protection Agency, the Department of Forestry, the Department of Water Resources, the Air Resources Board; and the U.S. Departments of the Interior, Energy, and the U.S. Environmental Protection Agency;
- Surrounding local governments at both the county and city level;
- University research centers and associated national laboratories specializing in renewable energy and land use issues in California;
- Energy industry trade groups such as the California Solar Energy Industries Association, the Large-scale Solar Association, the Electric Power Research Institute, the Independent Power Producers Association, and the California Municipal Utilities Association; and
- Local land stakeholders, members of the community, and any interested party.

Planners should consider creating training documents that orient staff to both the ancillary and primary use facility permitting processes to ensure they understand the process and their role in it and can engage the public formally and informally with consistent messaging.

4.9.4 Create early consultation processes for project developers

Developers who can communicate easily with permitting officials during project development will likely submit better permit applications that result in superior projects. As a recognized best practice, several jurisdictions now have a dedicated point of contact in the form of a staff person at the planning department who specializes in responding to questions regarding ancillary and primary use projects.

In many communities, the most successful primary use programs have been implemented by staff members that come to their positions with experience coordinating diverse business and community stakeholders in land use decision making processes and are given sufficient jurisdiction to advocate for

program development.[21] Teambuilding through the development of a solar PV-specific implementation plan can bring together private contractors and developers with building officials and POU or IOU staff.

4.9.5 Create one-stop permitting process descriptions and instructions, and single-window permitting for ancillary systems

Creating a one-stop permitting process for primary use projects can significantly improve the efficiency of permitting and decrease developer costs. For ancillary use, the most useful documentation includes applications, checklists, model plans, and guidebooks. For primary use systems, they include siting standards and a publicly available list of average processing timelines for use permits. The following is an example from Fresno County:

> "The county exercises authority over all phases of solar facility development on private and state lands and the various permits may be issued on a 'project-by-project' basis. The normal processing time for County permits is:

- Notice of Exemption: 10 days (after approval of project)
- Construction CUP: 1-6 months (depends on project)
- Production CUP: 6 months (depends on project)
- Rezoning: 6-12 months (depends on project)
- Building permits: 20 days (depends on other departments)

Resources

Fresno County solar PV facilities and processing planning department page has a thorough documentation of both conditional use permitting processes for primary use systems, as well as other information for the community such as the location of proposed projects.

4.9.6 Community outreach

Community-integrated planning processes have the potential to mitigate project impacts and thereby reduce community opposition. During the general plan development process, planners can formalize community outreach efforts by appointing an energy facility planning advisory committee or task force to help oversee the development of resource and land inventories. These exercises can create localized hubs of expertise to review general plan policies regarding rezoning, the development of siting standards, and other measures. Community members who participate in these advisory panels can later serve on the citizen advisory committee and technical advisory committee that review and comment on project permit documents.

4.9.7 Coordinate regional efforts

To coordinate the development of the renewable electricity sector, agency staff should be knowledgeable about two types of regional efforts that may affect project activities: transmission line

[21] Interview with Allison Healy, Director of Solar Sonoma County, Sept. 5, 2013.

siting efforts coordinated at the state and regional level and the renewable energy-supportive policies of neighboring jurisdictions.

4.9.7.1 Transmission line siting

In 2009, the Federal Energy Regulatory Commission issued Order No. 90, which required California to form a California Transmission Planning Group (CTPG) composed of IOUs, POUs, and the CAISO. Independent Power Producers (also known as merchant generators) and local governments also participate in CTPG meetings. The purpose of the CTPG is to coordinate transmission and generation asset expansion to promote transmission reliability, efficiency, and accessibility and meet the state's 33% renewable portfolio standard (RPS). The CTPG will likely become the main coordinative body for transmission planning in the state. Planners should therefore be aware of its activities and should participate in meetings and convenings when available.[22]

4.9.7.2 Coordination with neighboring jurisdictions

Planners should use regional energy plans that coordinate the activities of neighboring jurisdictions to simplify ancillary use permitting procedures and to coordinate reviews when primary use projects may impact more than one city or county.[23] Some regional collaborative efforts are forming through the creation of Sustainable Community Strategies under SB 375 (Steinberg, 2008).

Coordinating permitting processes for primary use solar projects can be challenging due to the natural variability of such projects. An example of a coordinative effort is the Desert Renewable Energy Conservation Plan process undertaken by Southern California communities in the Counties of Imperial, Inyo, Kern, Los Angeles, Riverside, and San Bernardino. The regional collaboration resulted in analytical tools and standardized protocols for environmental conservation, species take permits, and project review for solar thermal, utility-scale solar PV, wind and other forms of renewable energy and transmission infrastructure support.[24] These resources will be useful for other regional coordination efforts.

4.9.8 Energy strategies and plans as vehicles to support solar

Communities can benefit from developing a community energy strategy to summarize and further detail the policies established in general plans. Planners can also use a Climate Action Plan for this purpose.

Resources

In 2001, Chula Vista adopted the Chula Vista Energy Strategy and Action Plan to identify recommended actions and detail the community's ongoing study of developing a community choice aggregator, detail local incentives for expanding energy conservation and promoting energy-efficient and renewable energy programs for businesses and residents; and discuss plans to implement a

[22] See the California Transmission Planning Group, Homepage (no date). Available at: http://www.ctpg.us/

[23] Suzanne Phinney, Emily Capello, Patricia Cole, Ruth Darling, Brian Fedrwo, Emi Kiyan, and Eric Nguyen. Energy Aware: Facility Siting and Permitting Guide (2011). http://energy.ca.gov/2009publications/CEC-600-2009-013/CEC-600-2009-013.PDF.

[24] More information on the Desert Renewable Energy Conservation Plan can be found at www.DRECP.org.

legislative strategy that facilitates the achievement of energy plan goals.

In 2010, the City of San Diego created a Solar Energy Implementation Plan to agglomerate and detail the solar energy production and consumption goals found in other community planning documents. The Citywide Solar Energy Implementation Plan gives specific plan-like detail to objectives, actions, and short and long-term projects in the city in the following subsections:

- An inventory of all city facilities and solar potential;
- Property Assessed Clean Energy Programs (PACE);
- Solar energy as a driver of economic development;
- Legislative issues and imperatives;
- Emergency preparedness analysis;
- Relationship between increasing solar capacity and greenhouse gas emission reduction;
- Identification of needs in partnership expansion, and education and outreach to community sectors; and
- A pathway to meeting goals.

Importantly, San Diego's Plan discussed the targeted effects of its solar programs, including economic development, job creation, green buildings development, carbon emission reductions, energy security, and environmental asset preservation. In addition, the report contains summaries of the results of both public surveys and focus group meetings related to the barriers and solutions for installing more solar PV systems in the community.

For complete survey findings and focus group report, see City of San Diego and the California Center for Sustainable Energy, Solar Survey (2009), and Fairbank, Maslin, Maullin, Metz & Associates, Key Findings from Recent Countywide Survey on Climate Change (2010).

4.10 CEQA review and streamlining

Although certain ancillary projects are exempt from CEQA review under SB 226 (Simitian, 2011), all primary use projects will require either a CEQA Environmental Impact Report (EIR) or a negative declaration. Local government planning agencies generally act as the lead agency in the preparation of environmental documentation for primary use projects on non-federal, non-state, and non-tribal lands. EIRs can be comprehensive Master or Program EIRs (MEIRs and PEIRs, respectively) or more narrowly focused project-specific EIRs.

Public Resources Code §21081.6 stipulates that a CEQA lead agency must adopt a reporting or monitoring program that is designed to ensure compliance during project implementation. If possible, planners should incorporate mitigation measures into the siting standards and criteria created under rezoning so that developers are aware of their necessity and can plan accordingly. The CEC included an encyclopedic review of mitigation measures within the Energy Aware Planning Guide.

As an innovative strategy, Kern County consolidated the EIR preparation process for multiple primary-use projects concurrently under consideration.[25] This strategy is new and therefore requires significant planning oversight by county planning department staff. However, developers appear to welcome it for its ability to share CEQA compliance costs among developers.

[25] Interview with Lorelei Oviatt, Director of Kern County Planning and Community Development Department, Apr. 10, 2014.

5. Financing and Resources: Tricks of the Trade

Project developers and owners of both ancillary and primary use systems are likely to rely upon utility, state, and federal grant and loan programs for financial assistance. Planners should provide information about these incentives on the community's website. Planners can best provide the data by linking the community's solar-specific website to the Go Solar California site as well as the solar incentives internet home page of the IOU. The DSIRE database offers additional details regarding federal, state, and some local government incentive programs.[26]

Planners should undertake a review of these programs in consultation with state agencies and utilities to identify gaps in program coverage and ameliorate these gaps with local programs. Once planners isolate gaps, several financing assistance structure options exist for the community, detailed below.

5.1 Green Power RPS and Purchasing

Green Power RPS programs mandate that the utility deliver or purchase some or all of its delivered electricity from renewable resources. Government facilities (through long-term contract) and/or private customers (via opting in to the program) purchase all or some of their power from renewable sources. SB X1-2 (Skinner, 2011) requires most POUs to develop RPS programs that are commensurate with those of the IOUs.

Creating a community-specific RPS program is only available to communities with their own public utilities or community choice aggregation (CCA) entities. In these programs, the government works with the POU Board of Supervisors to commit the local utility to an RPS target. Communities that are not served by POUs may be able to establish a community choice aggregation (CCA) program.[27]

As an appropriate first step to considering a CCA, local officials should undertake a feasibility study of the benefits and costs of forming a CCA. In 2001 the City of Chula Vista adopted an ordinance and plan to investigate the possibility of creating a municipal utility. The city's Energy Strategy (adopted at the same time) considers:

> "[…] recommended actions, including monitoring the energy market and legal restrictions; being prepared to enter into an electrical services contract with an energy services provider or power generator, as allowed by law; partnering with a third party to build and operate power generation facilities; developing an emissions offset program, based on mobile sources; becoming a municipal 'aggregator' and acquiring electricity at negotiated rates for City facilities

[26] Data regarding incentives can be gathered by searching the Database for State Incentives for Renewables and Efficiency (DSIRE) at www.dsireusa.org, and through consultations with the local utility.

[27] See SPUR, Proposition H – Municipalizing Electric Service (no date). http://www.spur.org/goodgovernment/ballotanalysis/Nov2008/proph; see also Heather Knight, "In S.F., voters defeat Prop. H for city utility", San Francisco Chronicle (Nov. 5, 2008), http://www.sfgate.com/politics/article/In-S-F-voters-defeat-Prop-H-for-city-utility-3186957.php.

and participating residents and business owners; expanding energy conservation projects for City facilities and promoting energy-efficient and renewable energy programs for businesses and residents; and developing and implementing a legislative strategy that facilitates the City's overall energy plan."[28]

Counties and cities can also procure renewably generated electricity to power governmental operations and facilities.

Resources

Several city green power purchasing programs are exemplars:

- Since 1999, the City of Santa Monica has purchased renewable energy certificates for the entire amount of electricity used by the city, with certified renewable energy credits purchased through a third-party provider.
- The City of Los Angeles committed the city government to gradually-increasing proportions of renewable energy purchases for city facilities.
- The City of San Diego established the goal of adding 50 MW of renewable energy for city operations by 2013 in its Climate Protection Action Plan.

In addition, many POUs offer consumers the option of paying more for renewable energy for their delivered electricity. These programs also generally use REC-certified electricity purchased from a third party contractor.

- City of Roseville: Allows public utility customers to pay an extra $0.005/kWh for 100% renewably generated electricity, and businesses that participate are given the label of Green Business.
- City of Palo Alto: PaloAltoGreen offers residential, business, and industrial utility customers the option to support the generation of electricity from 100% renewable wind and solar resources. Voluntary participants pay an additional cost of $0.015/kWh for certified green energy.
- Los Angeles Department of Water and Power: The Green Power for L.A. program allows Los Angeles residents, businesses, and government customers to purchase certified renewable electricity. Residential customers can select any proportion of their monthly electricity use between 20–100% to be renewable and will pay an additional $0.03/kWh charge for that proportion of their electricity. Green power purchases for non-residential customers are sold in blocks of 500 or 1000 kWh per month.

The Community Shared Solar programs discussed in Section 4.4.1 represent another means of procuring renewable energy directly. These programs are usually funded by third party loans obtained by project developers and built on land that has been leased to the developer from the local government for a nominal price.

[28] City of Chula Vista General Plan, pp. PFS-54

5.2 Local Grant Program

Grant programs at the local government level in California consist of either permitting fee discounts or rebate programs.

5.2.1 Fee waivers and discounts

Many communities have eliminated permit fees for ancillary systems to spur demand for systems. However, fee waivers can be detrimental if they reduce a government's solar permitting capacity over the long term. If a community develops solar PV plan templates that reduce permitting costs for staff, then they may want to offer fee discounts based on the use of these resources. For example, the City of San Diego reduces permitting fees for ancillary projects that use the city's plan templates.

5.2.2 Rebate programs

Local rebate programs are most often used to increase incentives available from state and federal rebate programs, rather than as the primary source of funds. San Francisco's Solar Energy Incentive Program is one of the most generous local government solar incentive programs in the state. The city and county has been able to use revenue generated from the sale of electricity from the Hetch Hetchy facility to fund a multi-tiered incentive scheme that applies to residential, low-income residential, multi-family non-profit residential, commercial, and non-profit owned non-residential buildings. Incentives are granted on a per-watt installed capacity basis. Additional incentive levels are available to participants who live in high at-risk income zones designated by the city. Some best practices from this program include:

- Incentive levels are based primarily on the size of the installed system, not the cost of the system;
- A city and county job-creation platform pushes developers to hire locally via increased grants to projects that use local installers;
- Eligibility constraints that require project hosts to undertake a home energy assessment and pursue energy efficiency upgrades before receiving solar rebates;
- California Solar Initiative documentation requirements to utilize this well-tested process and ensure high-quality applications, along with an online application process as of October 2013; and
- A standardized application process that reduces transaction costs and eliminates system size requirements to participate, while retaining limits to the maximum amount of incentives any project can receive.

Resources

Other communities with limited rebate funding have used well-defined eligibility requirements to ensure that the highest-impact projects receive funding first:

Alameda Municipal Power provides rebates to commercial and residential customers on a per watt-installed basis (with a system maximum size of 1 MW or 110% of a customer's load), with incentives declining over the course of 10 years (as occurred in the IOU-rebate scheme under the CSI). Free energy audits are required to be eligible for rebates. The program, started in 2007, committed all residential system funds early on, but the commercial program still accepts applications.

Anaheim Public Utilities offers rebates for solar systems for residential and commercial customers. Systems must be at least 1 kW and not more than 1 MW and a declining rebate schedule has been set for every year until program completion in 2016. Rebates in the next funding cycle will be rewarded on a lottery basis due to overwhelming demand. Contractors must be licensed by the State of California, and system sizes are capped at a customer's last year's electrical usage.

Azusa Light & Water provides solar PV system rebates to residential and commercial customers. Systems must be at least 1 kW with no cap on system size. The POU offers rebates on a per-watt installed rate. As a condition of receiving the rebate, customers must employ a California-licensed contractor, install a system declared eligible by the CEC, and must assign all generated Renewable Energy Credits to the utility. Leased systems may also apply for a rebate given certain conditions.

Burbank Water and Power grants solar PV rebates to residential customers and commercial customers for systems at least 1 kW and less than 30 kW on a lottery award basis. In contrast to other POU programs, Burbank offers rebates either as an up-front generation capacity based rebate on a per-watt basis, or as a production based incentive dependent on actual annual generation. Rebates will decline annually until program completion in 2016. Systems must be serviced by a specially-provided meter, and customers must first undergo an energy-efficiency audit and install energy efficient appliances. Leased systems may apply for the rebate as well.

5.3 POU Feed-In Tariffs

In feed-in tariff programs, owners of distributed generation assets contractually agree to sell excess electricity delivered to the grid at a premium. Communities with POUs can work with the POU's board to implement these solar financing options.

Resources

The City of Palo Alto's Utility's started the Clean Local Energy Accessible Now (CLEAN) program in 2012 to support distributed generation within city limits. The POU contracts for generation from both ancillary and primary use systems with no minimum or maximum system size and eligibility for ground-mounted, roof-mounted, or carport-mounted projects. The program caps total capacity procurement at 2 MW. A handbook and application are also available.

The Los Angeles Department of Water and Power offers a similar feed-in tariff program with a higher cap of 100 MW, developed after an initial demonstration program capped at 10 MW.

5.4 Local Finance and Loan Programs

Local finance and loan programs come in two types: programs in which government-sponsored financing is offered to property owners and paid back with property taxes assessed on improved properties (called Property Assessed Clean Energy (PACE) programs), and programs in which local governments offer project developers traditional loan financing directly.

5.4.1 PACE Programs

In a PACE program, a government entity (typically the city or county government) pays for the renewable energy project, usually through a project lending bank at significantly reduced borrowing rates. The local government or bank provides the money to a property owner, who then repays the local government via a property tax assessment. The PACE assessment will appear as a new line item on the owner's property tax bill for the duration of the repayment period. If the property changes ownership, the new property owner, rather than the original borrower, will be responsible for paying the assessment.[29] PACE programs have grown slowly in recent years. However, they are set to expand in the coming years due to the CaliforniaFirst PACE program. CaliforniaFirst was developed by the California Statewide Communities Development Authority in the summer of 2014 and is supported by a state insurance fund to protect mortgage holders from subordination by PACE liens. 17 county governments have joined the CaliforniaFirst program, and all California Statewide Communities Development Authority member communities interested in creating PACE programs should consider applying to join. However, local governments can also develop their own PACE programs, as Sonoma and San Francisco County have done.

Under the Improvement Act of 1911, as amended by AB 811 and AB 747, or the Mello-Roos Act as amended under SB 555, local governments by resolution can designate an area within which property owners can enter into PACE contractual assessments.

The Mello-Roos Community Facilities Act of 1982 (Government Code §53311-53368.3) allows any county, city, special district, school district, or joint powers authority to establish a community facilities district (CFD) to finance public improvements and services. Traditionally, a CFD sponsoring government entity must propose a district that includes all properties that will benefit from the improvement and a vote of two-thirds majority of all residents or land owners within the proposed district must affirm this proposal.

Resources

[29]Due to ongoing legal disputes between PACE administrators and the Federal Housing Finance Agency regarding lien seniority, most residential PACE programs currently require PACE financing to be repaid in full upon ownership change.

In cooperation with the U.S. Department of Energy's Rooftop Solar Challenge Program, the California Center for Sustainable Energy produced in 2013 a comprehensive guidebook on PACE financing structures and governing laws.[30]

More information about the CaliforniaFirst program and the requirements for joining the program as a local government can be found on the CaliforniaFirst website.

5.4.2 Traditional lending

Non-PACE program options, whereby the local government offers traditional loan products, are rarer but also available. A revolving loan fund, such as Chula Vista's Home Upgrade, Carbon Downgrade (HUCD) Community Revolving Loan Fund, provides traditional property lien-based low interest financing for property owners to implement energy efficiency retrofits and/or to install renewable energy systems at their homes or businesses in Chula Vista. Chula Vista property owners can receive no-interest financing for energy efficiency upgrades or a solar PV system that does not exceed the on-site energy demand of the property.

As in the Chula Vista program, loan information documents should clarify program details by:

1) Summarizing the purpose of the program;
2) Enumerating eligibility requirements for applicants and projects;
3) Containing a link to an electronic application;
4) Clarifying documentation requirements;
5) Establishing application expectations for the process; and
6) Providing detailed loan terms and conditions.

Such informational documents are best supported through an online "frequently-asked-questions" page, as well as a dedicated staff member to field questions from the public.

5.5 Renewable policy development and planning grants for local governments

Local governments will have to be creative in finding initial funding for solar-specific regulatory suites and incentive programs. The CEC is currently developing a program (a part of EPIC) to offer grant-based financial assistance to city and county governments within IOU territories that wish to integrate renewable energy goals, policies, and implementation measures into local regulations, including general plans, ordinances, and zoning codes. Five counties received funding to date, and an upcoming grant solicitation will expand the program to other jurisdictions.[31] Participating governments are using the

[30] Joe Kaatz and Scott J. Anders, Residential and Commercial Property Assessed Clean Energy (PACE) Financing in California (2013).

[31] California Energy Commission, The Electric Program Investment Charge: Proposed 2012-14 Triennial Investment Plan CEC-500-2012-082-CMF, 2012, p. 166. http://www.energy.ca.gov/research/epic/documents/final_documents_submitted_to_CPUC/2012-11-01_EPIC_Application_to_CPUC.pdf. See also CEC, CEC, The Electric Program Investment Charge: Proposed 2015-2018 Triennial Investment Plan, 2014, S20, p. 160. Available at: http://www.energy.ca.gov/2014publications/CEC-500-2014-038/CEC-500-2014-038-CMF.pdf

funds to update general plan elements, most commonly by creating separate voluntary energy elements. Other activities include developing a locally tailored renewable energy ordinance, as well as an overlay zoning code that prioritizes the development of primary use systems on certain lands identified as best-fits through a GIS-enabled resource and land characterization audit. New grants will be distributed for six programs:

1) Pilot demonstrations of localized energy resource markets;
2) Planning grants to cities and counties to incorporate clean energy technology planning and permitting processes into local government land use planning;
3) Local government needs assessments studies that identify regulatory gaps within local planning and zoning processes;
4) Model ordinance development for emerging clean energy technologies through collaboration with local jurisdictions and industry stakeholders;
5) Funding to assist in the implementation of the OPR's general plan guidelines; and
6) Consensus-based educational material development for local officials interested in facilitating clean energy market growth.

Regional consortiums of cities and counties may apply to the different sub-topics of the grant program, but generally the terms and agreements will be made with individual cities and counties. [32]

Local governments can also increase funds through voluntary consumer participation. The City of Roseville offers electricity consumers the option of paying an additional $0.005 per kWh to contribute to the Roseville Green Fund, which supports the maintenance of City-owned solar electricity projects such as a solar array on the roof of the civic center. In addition, local governments can increase revenues for implementing city-run renewable energy programs by imposing a local tax on electricity usage. Santa Monica's program taxes all electricity charges at the rate of 10% and collects via the utility.

Green purchase programs that require that city or county facilities are powered with renewably generated electricity will likely require general revenue funds. To enable such expenditures, a city or county's formation documents will need to be reviewed and potentially modified to allow for the use of general revenue bonds for the purchase of renewable energy systems and conservation measures. San Francisco provides a good example of how to revise regulations to finance city purchases of renewable energy. In 2001, the city's voters passed Propositions B and H. Proposition B (text here) was a direct bond appropriation of $100 million for renewable energy installations, as well as energy conservation measures, on public and private properties. Proposition H (full text available here) changed the city charter so that general revenue bonds can be used for renewable energy and conservation measures and can be approved directly by the County's Board of Supervisors, rather than requiring a new

[32] For more information on the EPIC program and local planning grants, see Chapter 5 of California Energy Commission, The Electric Program Investment Charge: Proposed 2012-14 Triennial Investment Plan CEC-500-2012-082-CMF, 2012.

proposition each time a new purchase is needed. The bonds are repaid through energy cost savings from these installations and from energy-efficiency improvements at city facilities.

Some communities now require primary use project developers to report sales and/or use taxes on their materials and technology purchases as occurring in the project jurisdiction so that sales taxes accrue to the local government. These funds are then partially spent to provide governance services for the project. Some projects may be tax-free if they are owned by a non-taxable entity. To ensure that sufficient revenue is available to pay for county and city public safety services for the site, local officials should consider signing agreements that require projects to pay fees in lieu of property tax agreements, so long as the agreement is supported by a nexus study that links the fees directly to benefits that accrue to the project.

If the project requires the use of publicly owned rights-of-way controlled by the local government, communities may be able to negotiate Franchise Agreements to assess fees for the use of these rights-of-way.

5.6 General Plan Language Regarding Incentive Programs and Financing Regulatory Improvements

General plan policies and implementation measures regarding the development of the project-based assistance programs detailed above are often stated generally to allow the jurisdiction flexibility to consider the optimal suite of incentive mechanisms over time as market conditions change.

Sample General Plan Language:

Sample Policy: To enable the continued development of solar PV sector in [the City or County], [the City or County] shall develop incentive measures to reduce project costs for projects that successfully balance solar PV sector growth with community development priorities.

Implementation Measures: Explore implementation of a [City or County]-sponsored clean energy financing program to provide grants in the form of reduced permit fees, project-based rebates, and low-interest loans to property owners for the installation of energy efficiency improvements or renewable energy devices.

Programs reliant on POU partnerships, such as the development of feed-in tariffs and a Green Power RPS, should be supported with general plan policies and implementation measures that aim to create partnerships between city or county planning departments and POU boards.

Sample General Plan Language:

Sample Policy: [The City or County] shall work closely with [the City or County POU] Board to develop financing incentives to promote renewable energy development.

Implementation Measure: Regularly meet with and lend support to [City or County POU] staff to ensure that utility programs that offer financial assistance to solar PV projects in the community are aligned with [City or County] incentive policies.

Implementation measure: Continue to pursue external funding (i.e. grants) for providing renewable energy and improving energy efficiency.

PACE programs should be advanced by specific language, depending on the community's choice of which type of PACE program to pursue. Depending on the guiding legislation used, the programs require formational processes including the establishment of the program by resolution and voting requirements for member parties and others.

Sample General Plan Language:

Implementation Measures: Explore the feasibility of creating a voluntary PACE program or joining an existing Joint Powers Authority PACE program to offer low-interest property tax assessed loans to property owners for distributed renewable energy, [energy efficiency, and water efficiency upgrades] for [City or County] residents. If advantageous to the community, use general fund revenues to prepare and pass a resolution accompanied by the required reports and documentation to enact the program.

For communities within county jurisdictions with existing county-wide PACE programs:

- Promulgate a resolution to join the [County] PACE program to allow property owners in [the City] to receive loans for solar energy installations secured by additional property taxes.
- Promulgate a resolution to join the CaliforniaFirst program to allow property owners in [the City or County] to receive loans for solar energy installations secured by additional property taxes.

For communities considering the establishment of a Mello-Roos Community Facilities District under AB 811:

- Investigate the feasibility of establishing a Mello Roos Special Tax district within [the City or County] by resolution or ordinance that allows [the City or County] to raise bond funding to provide loan assistance to property owners within the Special Tax District and allow property taxes assed on properties within the district to pay back the bond.
- When creating a PACE financing program under either AB 811 or the Mello-Roos Act, seek judicial validation of the program to mitigate [City or County] liabilities.