Transmittal Letter for the Local Government Strategic Energy Action Report

June 15, 2010

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Prepared by the
California Public Utilities Commission
Energy Division

The California Public Utilities Commission (CPUC) hired Navigant Consulting (formerly Summit Blue LLC) as well as SAIC and Innovologie to conduct a study of local government implementation of energy efficiency policies and practices represented in the local government chapter of the California Long-term Energy Efficiency Strategic Plan, adopted in September of 2008.

The CPUC recognized the leadership role of local governments in reducing energy use and global warming emissions in California. The CPUC wanted to better understand the barriers local governments face in pursuing energy efficiency policies and practices, ways to overcome those barriers, as well as the successes and exemplary practices of local government leaders in this regard. The CPUC hopes that the findings and case studies included here support progress and momentum on this front.

The scope of the report did not allow research or analysis into elements such as the costs and cost-benefit of funding this type of local government action, or the relative return on investment of such funding compared to other energy efficiency programs or efforts. As such, recommendations that cite the need for more funding or support for local government energy efficiency and greenhouse gas reduction efforts, do not include these considerations. The study focused on input from local government officials, and those who work with them and was not meant to be a broad survey of opinion on these subjects.

Local Government
Strategic Energy Action Report

Submitted to:

    Jean Lamming
    California Public Utilities Commission
    Energy Division

Submitted by:

    Navigant Consulting
    1990 N. California Blvd, Ste 700
    Walnut Creek, CA 94596
    925.935.0270

Prepared by:

    Floyd Keneipp, Project Director
    Navigant Consulting
    925.935.0270
    fkeneipp@summitblue.com

    Thomas Jensen, Project Manager/Principal Analyst
    SAIC
    510.466.7169
    jensent@saic.com

    John Reed, Senior Analyst
    Innovologie
    301.340.8701
    jreed@innovologie.com

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Executive Summary

Until recently, energy efficiency was not a priority on local governments' agendas. However, California's Global Warming Solutions Act of 2006 (AB32), which requires a statewide reduction in greenhouse gas emissions and sets forth a process to achieve ambitious energy efficiency goals, has pushed it to the top.

The State of California's AB32's Scoping Plan states that "local governments are essential partners in achieving California's goals to reduce greenhouse gas emissions...and have broad influence and, in some cases, exclusive authority over activities that contribute to significant direct and indirect greenhouse gas emissions through their planning and permitting processes, local ordinances, outreach and education efforts, and municipal operations."

The State's Scoping Plan would set high and new targets for statewide annual energy demand reductions of 32,000 gigawatt hours and 800 million therms from business as usual by 2020. These targets exceed existing efficiency targets established by the CPUC for the investor-owned utilities due to the inclusion of innovative strategies above traditional utility programs. While the targets for building energy efficiency are not specifically directed at local governments, California cannot meet them without a 60% reduction in building efficiency, which is largely driven at the local level.

In order to accomplish AB 32 and other mandates, the CPUC's 2008 California Long Term Energy Efficiency Strategic Plan set a goal that, by 2020, California's local governments will be leaders in energy efficiency both in their own facilities and throughout their communities.

While local governments have the ability to achieve the Strategic Plan's vision—and some pioneering communities are beginning to do so already—the majority of localities have critical gaps in capacity.

This study serves two main purposes. One is to identify successful strategies, approaches, and practices currently used by local governments to enhance their communities' long-term capacity to save energy. The second is to provide recommendations on the types of goals and implementing actions that are needed to achieve the 2008 Strategic Plan's vision.

To determine what local governments can do to improve energy efficiency, this study conducted in-depth interviews and surveys of elected officials, city managers, department heads, and professionals (See appendix K for the interview guide). We met with several statewide and regional organizations, performed a comprehensive literature review, and analyzed policies and examples of innovations of more than 100 local governments in California.

We examined six major topics of interest:

1. Leveraging local planning and development authority to achieve energy efficiency

2. Increasing energy efficiency in government buildings

3. Code compliance and energy efficiency

4. Reducing energy use in buildings through advanced energy codes

5. Financing energy efficiency projects

6. Solutions to cross cutting barriers that inhibit developing local energy efficiency capacity.

The following is a brief summary of the findings for each of these topics of interest.

Leveraging Local Planning and Development Authority to Achieve Energy Efficiency

Cities and counties across California are experimenting with Strategic Plan actions. To begin, most of those communities started with something simple—passing an energy code with higher standards than Title 24, or a green building code in response to a specific opportunity or risk. Developing energy ordinances often supports broader leadership and action, such as developing a climate action plan (CAP) or an energy action plan.

General Plan updates are used by local governments to address code issues related to AB32, since they provide an opportunity to build a consensus on climate, energy, and sustainability issues. Local governments develop a CAP to quantify municipal and community-wide GHGs and to set policies to reduce those emissions. While CAPs can list specific energy actions, and each sets overall GHG reduction goals and energy efficiency measures, most lack a plan to further evaluate and/or fund implementation.

The localities that have created energy plans are among those with the strongest capacity for, or history of, energy action. The best of the plans specify indicators to track energy performance to goals. Energy plans may be catalyzed by CAPs, because CAPs help communities understand the importance of energy efficiency and renewable energy within a measureable environmental context. The risk that CAPs will fail to set specific, implementable, and measurable goals and actions for energy can be reduced if the state agencies involved in energy or emissions policy work closely with local governments as CAPs are developed.

High-level sustainability plans set forth community-wide goals, actions, and performance reporting, and create opportunities for integration of energy, environment, economic development, and community branding in the way that a business might create a vision and a business model around sustainability. Communities are beginning

to set that vision, in part to better compete for new industries and high-value development.

The development of land use and development plans to include green measures has sometimes started with the threat of litigation in response to specific environmental situations. A significant event was the Attorney General's lawsuit against San Bernardino County over AB32. AB32 and SB375, California's Climate Change Smart Growth Bill, have spurred many local governments to identify their climate impacts. Other important drivers of building energy into the fabric of land use planning and development are public leadership and community demand for energy and climate action.

Communities face barriers and difficulties in using planning and development mechanisms to fully achieve their energy efficiency goals. The most significant barrier is funding. Some communities suffer from a lack of political commitment. If a city lacks a political champion for climate issues, it is difficult to take action. Many communities assign energy issues to a single department, such as the planning department. This practice may not give the effort the comprehensive stature needed. Also, some municipalities are very uncertain about how to implement statewide climate legislation, which makes defining goals and identifying reduction activities difficult. Many smaller agencies find it difficult to understand the issues fully and to develop an awareness of what they can do about it. One solution is for communities to share information and collaborate closely with other localities.

Successful community energy programs have a top-down commitment to reduce energy consumption and GHG emissions. They use a strong stakeholder process, drawing on people within the community who have energy expertise. Networking with other local governments to learn about energy efficiency initiatives is effective. The internet is an important tool for engaging citizens on energy and climate change. One website we encountered allows citizens to interactively identify personal greenhouse gas reduction measures. Social networking sites such as Facebook are also being utilized to motivate individuals to act.

Increasing Energy Efficiency in Government Buildings

If local governments do just one thing on energy, they should implement an energy management plan for their own buildings that includes advanced building standards. Implementing an energy management plan lays a foundation of experience and credibility to lead the rest of the community. Ideally, such a plan includes benchmarking energy use, centralized utility billing and payment, and regular reporting to management on energy use and cost savings. Part of this strategic effort is to develop an inventory of municipal buildings and to audit their energy use. Setting specific, measurable energy reduction goals then becomes possible.

Some local governments have established an energy committee or working group to clearly define the community goals. Having a dedicated energy manager or another "energy champion" to plan and implement energy efficiency projects is essential.

Making the approval of efficiency projects part of a formal budgeting process, or a formal pre-approval process has proved to be helpful in implementing energy reductions in municipal buildings.

Communities that are constrained by the availability of personnel and technical know-how find that comprehensive turnkey services produce better outcomes. Each major utility in California has programs that specifically target water and wastewater and can provide both financial and technical resources; local government should take full advantage of these utility programs.

Retro-commissioning is an emerging concept that involves restoring a building's operating parameters to the original design intent. Over the years, changes can have a negative cumulative effect on building performance. The retro-commissioning process provides the opportunity to revise "design" conditions to reflect newer use and occupancy requirements. Some of the communities receiving funding from the state for efficiency programs for their own buildings between 2010 and 2012 are being asked to implement retro-commissioning. Additional actions being undertaken include energy efficiency purchasing policies that can significantly reduce energy consumption from computers, appliances, and other devices.

There are barriers to improving municipal building performance. Financial constraints are a common reason for failure to implement energy efficiency projects. Budget reductions equate to staffing reductions, which creates a "tug of war" between staff time and budget. The three-year CPUC public goods charge (PGC) program cycle was cited as inhibiting energy efficiency project completion due to the many time-consuming steps required, including the audit process, seeking approval, public procurement requirements, and completing projects in time to get credit within the three-year program cycle.

Code Compliance and Energy Efficiency

California's Title 24 is the most advanced building energy code in the United States. It has many standards that promote energy efficiency. However, these standards are not meaningful unless they are complied with and enforced. Improving compliance with local and state energy codes is a cornerstone of a strong, capable, self-sustaining local government energy program. The 2008 California Long Term Energy Efficiency Strategic Plan seeks to dramatically improve local compliance with Title 24, including HVAC permitting and inspection requirements.

There are two main activities undertaken by local governments related to code compliance: plan review and physical inspection. The ideal is to have staff dedicated to each. When construction activities are increasing rapidly, communities may have problems meeting the demand for inspections. In periods when activity is declining, communities may find that they have more resources than they need. Managing staff workload is an issue.

Using a systematic approach that emphasizes standardized tools and processes, continuous improvement, training, and communication among all parties—plan inspectors, site inspectors, developers, contractors, and utilities—is key to improved energy code compliance. Inadequate staffing is the top barrier to higher compliance rates.

We identified other practices that improve compliance such as developing checklists and other tools to make the codes more user-friendly and implementable. Nearly all cities and counties emphasized the importance of communication with the developer/ builder/ contractor community. Investing in training, and educating building department staff and builders and developers, particularly specialized hands-on training and mentoring is important, as is facilitating continuous learning within the jurisdiction, so that plan reviewers and inspectors read, understand, and frequently review code requirements. Group training is also helpful to introduce code changes or additions, as is peer-to-peer exchange among officials and builders. A sound quality control program reinforces compliance.

Reducing Energy Use in Buildings through Advanced Energy Codes

California envisions a future in which buildings are extremely efficient and actually generate energy to supply the grid and plug-in vehicles. To realize this vision, energy codes must advance, as must the technologies to meet them.

At least 36 cities in California have adopted green building ordinances, many of which include energy codes that exceed the minimum standards of Title 24. Almost all local governments base advanced codes on standards and rating systems that specifically address energy efficiency, such as LEED (Leadership in Energy and Environmental Design), BIG (Build It Green), and HERS (the Home Energy Rating System).

In most communities, there are proactive developers and other stakeholders who realize the value of efficiency and renewable energy. These individuals can be of great help in developing advanced codes, because they understand the value of showing leadership on green issues and branding the community as interested in sustainability. Some developers are interested in piloting green building standards as a template for citywide standards. However, several local officials said that other developers oppose the new standards or that a great deal of time and energy is needed to obtain their support.

Whether local green building programs are voluntary or mandatory varies across the state. There is no evidence that either the voluntary or mandatory approach results in a better outcome. Communities have integrated green building programs into existing permit approval and inspection processes without great difficulty. However, implementing advanced codes for existing buildings is more problematic than for new buildings because of political opposition to enact these ordinances and then funding the inspection staff to ensure compliance. Sufficient time and resources are impediments to implementing advanced energy codes, including seeking CEC approval for codes that exceed the State's standards.

Financing Energy Efficiency Projects

For local government facilities, residences, and businesses, energy efficiency and renewable project expenditures may be second in size only to renovating the buildings themselves. Thus, it makes sense to spread the cost of such improvements over either the lifetime of the improvements or the payback period of the investment. Most energy efficiency projects have a positive cash flow and these projects should be treated as investments, not expenditures.

Financing is the most common barrier to advancing energy efficiency in existing buildings, even though the payback on efficiency projects can be very good—often only two to five years. There is a lack of knowledge of alternatives for financing energy projects for local government buildings, and an entrenched attitude among some local officials that energy efficiency projects should be paid for up front. Fundamental human behavioral issues such as this are not within the scope of our research, but it appears likely that, to the extent such attitudes exist, governments will continue to struggle with how to encourage large-dollar investment in efficiency and renewable projects.

At least a handful of local governments in California are moving toward or are already maintaining revolving loan funds for energy efficiency. Depending on the model, these funds use energy efficiency cost savings and/or rebate and incentive funds to pay for future efficiency improvements, which will in turn repay the accounts. These jurisdictions include the cities of San Jose, Long Beach and Visalia, and the county of San Bernardino. Maintaining a separate account is a superior financial management technique because it provides better visibility to the matching of outlays to savings. We did not define the extent to which this benefit is understood, or appreciated by, financial managers. Most of the communities we researched approve energy projects either as part of their capital improvement processes or within annual budgets.

Zero- or low-interest revolving funds represent a promising model for financing energy projects for local government buildings. With revolving funds, capital is applied to projects that produce a stream of dollar savings from energy bills and energy rebates, which are then used to replenish the fund. Borrowing costs and interest rates can be kept relatively low. On the downside, revolving loan funds are vulnerable to redirection by administrators and legislators to balance budgets, especially as the funds grow. In addition, communities face difficulties in securing seed capital for revolving funds with local government budget deficits and conflicting priorities.

California cities and counties can set up property tax-based energy finance districts (EFDs), either through California Assembly Bill 811, or through the Mello-Roos legislation, which authorizes localities to establish property tax assessment districts for fire, safety, and other services. A few communities are piloting EFDs with mixed success, and the pace of change is fast in this dynamic issue area. A major issue is that EFD bonds are not tax-exempt. Because the bonds must compete with tax-exempt bonds that typically bring higher net returns to investors due to tax advantages, EFDs must pay higher rates. The fact that the loans for energy improvements to buildings are senior to the mortgage loans on those buildings is another challenge.

The cost and effort to set up, market, sell, and administer individual loans makes EFDs unattractive for many communities to pursue on their own. The relatively small size of the bond offerings tends to inflate the interest rate. Regional or multi-jurisdictional bond offerings may be needed to get the administrative and interest costs to acceptable levels. Existing lenders on commercial and residential property are likely to be concerned about EFD loans because EFDs are part of property taxes, and are therefore a senior lien. This is a particular concern in markets with declining property values.

Currently, there is legislation to amend the 1987 Taxation and Revenue Code to allow cities and counties across America to fund energy loan programs with tax-exempt financing. Making the financing tax exempt would likely reduce rates by 1-2%, a significant and favorable change. Legislation being debated in Congress to allow the federal government to provide a guarantee on the bonds issued for these programs would reduce the risk to investors and make these financial instruments more attractive.

Solutions to Cross Cutting Barriers

This study has found several cross cutting barriers that inhibit developing local energy efficiency capacity to take action. The two primary such barriers we identified are;

1. The lack of self-sustaining funding and financial models; and

2. Mechanisms and systems to measure, track, and report progress and success to community stakeholders.

The most important action that the State can take to help communities achieve the Strategic Plan's goals is to assist them to develop and implement programs to support a financially sustainable local energy enterprise. The "Sustainable Energy Enterprise" (SEE) framework, as presented in Chapter 6 of this study, allows flexibility for local government to decide their own mission and then pursue it in a way that leads to measurable and reportable energy savings to support local and statewide goals in a financially self-sustaining way.

The programs that local governments execute must build on a strong political commitment by local government, including a plan and action for their own buildings and community-wide energy and climate action, strong code compliance, and regional cooperation on advanced codes. Figure ES-1 provides an implementation framework for a local enterprise based on the findings of this study.

Setting up and running energy enterprises within jurisdictions, including administering and leveraging revolving loan funds, energy service centers for municipal buildings, and possibly administering EFDs, will provide a revenue stream that could support an energy manager or small staff to operate the energy enterprise.

Figure ES-1
Implementation Framework for Local Sustainable Energy Enterprise (SEE)[1]

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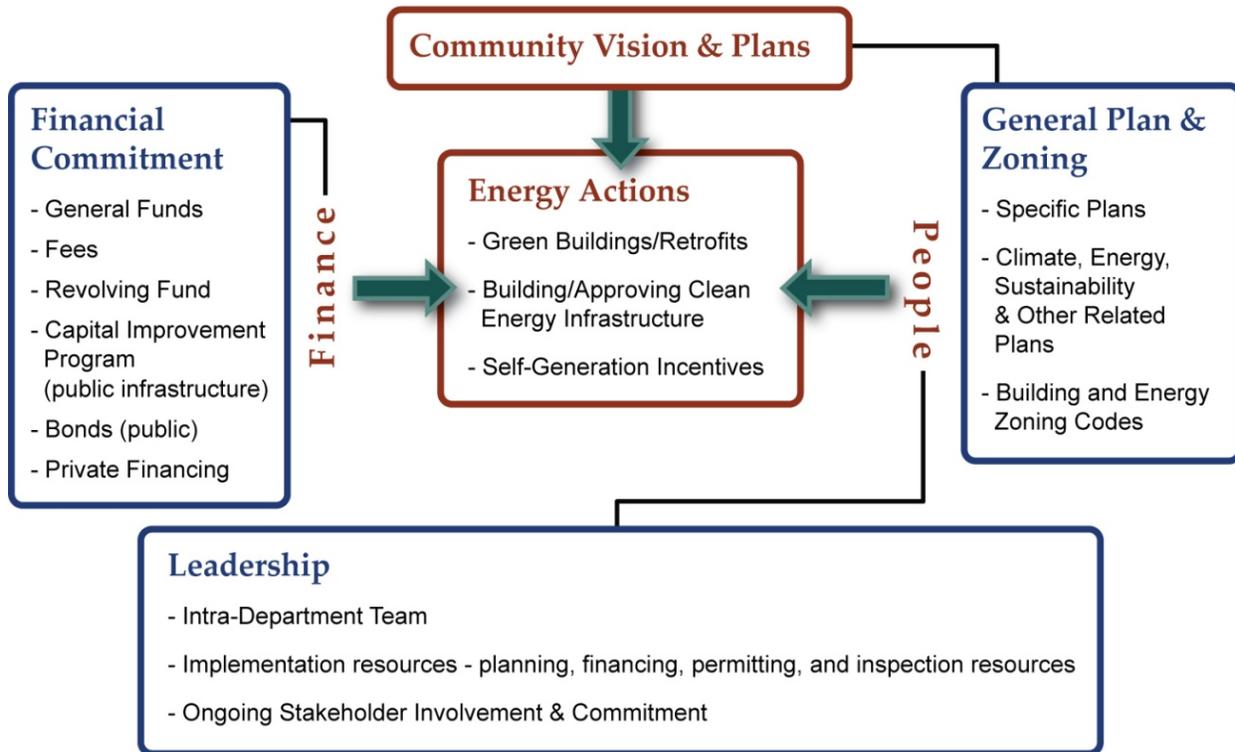
1. INTRODUCTION

The California Public Utilities Commission adopted the California Long Term Energy Efficiency Strategic Plan in September 2008 after working with more than 200 parties, including local governments, utilities, private companies, nonprofits, and state agencies.

> ### The 2008 Strategic Plan's Vision for Local Governments
>
> *By 2020, California's local governments will be leaders in using energy efficiency to reduce energy use and global warming emissions both in their own facilities and throughout their communities.*

The CPUC has long recognized the unique role of local government in fostering innovation in energy action. Almost ten years ago, the CPUC directed utilities to consider energy efficiency programs that take advantage of local governments' planning and development powers and expertise, their close relationships with their communities' residents and businesses, and their ability to provide local and regional leadership and coordination.

The Strategic Plan stresses that California will reach its energy and climate goals far more effectively if local governments expand their role. Figure 1-1 shows the plan's energy action goals for local government.

Figure 1-1: 2008 Strategic Plan Goals for Local Government

Goals	Goal Results
1. Local governments lead adoption and implementation of "reach" codes stronger than Title 24, on both mandatory basis and voluntary bases.	At least 5 percent of California's local governments (representing at least 5 percent of California's total population) each year adopt "reach" (advanced energy) codes. By 2020, the majority of local governments have adopted incentives or mandates to achieve above-code levels of energy efficiency (or demand side management) in their communities, or have led statewide adoption of these higher codes.
2. Strong support from local governments for energy code compliance enforcement.	The current rate of non-compliance with codes and standards is halved by 2012, halved again by 2016, and there is full compliance by 2020.
3. Local governments lead by example with their own facilities and energy usage practices.	The energy usage footprint of local government buildings is 20% below 2003 levels by 2015 and 20 percent below 1990 levels by 2020.
4. Local governments lead their communities with innovative programs for energy efficiency, sustainability and climate change.	By 2015, 50 percent of local governments have adopted energy efficiency/sustainability/climate change action plans for their communities and 100 percent by 2020, with implementation and tracking of achievements.

Goals		Goal Results
5. Local government energy efficiency expertise becomes widespread and typical.	→	By 2020, 100 percent of local governments have in-house capabilities devoted to achieving all cost-effective energy efficiency in their facilities and stimulating the same throughout the communities.

The Strategic Plan identifies three main strategies that give local government the most leverage to accomplish these goals.

Strategy 1. Tap Local Government Authority: Use local government authority over planning and development policy to maximize energy efficiency in privately-owned new and existing buildings.

Strategy 2. Lead by Example: Showcase promising energy efficiency, demand side management, and renewables products and practices in local government facilities to demonstrate that CO^2 reductions can be economic.

Strategy 3. Community Leadership: Leverage local governments' organizing abilities and unique relationships with business and community groups to lead communities in supporting clean energy goals.

Local governments have the ability to implement the three main strategies; however, they have critical gaps in their capacity to do so. The CPUC requested this *Local Government Energy Action Report* to better understand these gaps and the investments and other actions that may be required to address them.

1-1. PURPOSES AND GOALS OF THIS REPORT

The *Local Government Energy Action Report* serves two main purposes. One is to identify successful strategies, approaches, and practices currently used by local governments to enhance their communities' long-term capacity to save energy. The second is to provide recommendations on the types of goals and implementing actions that are needed to achieve the 2008 Strategic Plan's vision.

This report builds upon the Strategic Plan strategies by providing a broad range of models, best practices, tools, and case studies for local government. It aims to identify the capacity that local governments already have in place to improve energy efficiency in California communities right now, and discusses the fragility and durability of this capacity, especially as indicated by the self-sustainability of funding. It examines how local governments can address energy efficiency within the context of their leadership and organizational structures; policies; planning, development and building compliance responsibilities; sources of funds; and financing. Lastly, it aims to improve the understanding of the barriers to achieving the 2008 Strategic Plan's goals.

1-2.   MULTI-STEP APPROACH

The multi-step approach of this report included developing detailed research issues, reviewing an extensive range of literature, conducting in-depth interviews and a survey, completing qualitative and quantitative data analysis, and integrating all results in this document. In the initial phases of our research, we developed a set of specific research issues and associated interview and survey questions that cover:

- **Topical issues**, including successful approaches, best practices, and barriers to advancing the Strategic Plan's goals for local governments in their own buildings, land use planning, energy and climate planning, advanced or "reach" energy codes, code compliance and enforcement, and finance.

- **Cross-cutting issues**, including systemic and structural barriers to developing local energy efficiency capacity and taking action, the importance of generating local leadership capacity, understanding and accounting for the fragility of capacity for energy action at the local level, and measuring and evaluating progress and success.

During the course of this study, the authors met with more than fifty local elected officials, city managers, department heads, and professionals in local government. We conducted more than thirty in depth interviews, and surveyed more than two-dozen other local managers and staff. We contacted more than ten communities outside the State that are taking innovative energy actions. We also met with several statewide and regional organizations, including Build it Green, the Great Valley Center, ICLEI, The Institute for Local Government, the Local Government Commission, and *Stopwaste.org*.

We selected the cities and counties that we interviewed and surveyed based a comprehensive literature review of more than 250 references and an analysis of policies and examples of innovations of more than 100 local governments in California.

1-3.   THE LOCAL GOVERNMENT CONTEXT

Local governments have unique capabilities and relationships to lead their communities—and by extension, California—toward significant energy efficiencies. At the same time, local governments have many responsibilities and limited budgets that must be balanced. To better understand how local governments address energy among all the competing issues they must tackle, we asked more than 30 local officials to discuss where energy is on their list of priorities and why. We found there is no simple predictor of community priorities. Each community has its own reasons for how it prioritizes energy.

For most of the cities we studied, energy efficiency is a top priority, both for their own buildings and for the broader community. For the remainder, energy is a mid-level priority. Energy managers and city officials most frequently cited local political leadership and energy cost savings as reasons for prioritizing energy efficiency.

For interviewees who cited energy as a mid-level priority, budget constraints and the need to prioritize other city services and capital investments were the main barriers. Figure 1-2 highlights the drivers and barriers for the prioritization of energy efficiency.

Figure 1-2: Energy Efficiency Drivers and Barriers

Drivers	Barriers
Environmental Protection	Budget Barriers
Climate Change, AB32	Other Priorities: Safety, Cleanliness, Other City Services
Economic Development/Green Jobs	Lack of Knowledge
Local Political Leadership	
Federal/State Support/Leadership	
Energy Cost Savings	
Quality of Life	

There is no clear correlation between community size or character and the priority ranking of energy efficiency. While many cities ranked energy efficiency as a top priority, the two largest cities ranked it only medium. Similarly, communities with a significant rural or agricultural component had mixed responses. Two cited energy as a medium priority, and one rated it high. Both urban and rural communities cited cost savings as motivators, and both large and small-sized communities noted environmental protection as a key driver.

1-4. REPORT STRUCTURE

This report includes five chapters on the following topics. It also contains nine appendices.

- Chapter 2 - Leveraging Local Planning and Development Authority to Achieve Energy Efficiency

- Chapter 3 - Increasing Energy Efficiency in Government Buildings

- Chapter 4 - Code Compliance and Energy Efficiency

- Chapter 5 - Reducing Energy Use in Buildings Through Advanced Energy Codes

- Chapter 6 – Financing Energy Efficiency Projects

In each chapter, important findings are stated in a heading, with supporting detail underneath. We often use colored sidebars to illustrate points with a brief case or two. Recommendations are presented in Appendix A, including the Strategic Plan goal to achieve, implementing actions, and the timeframe for taking action. The appendices complement the chapters, and provide a wealth of information for local governments to

use immediately to take action on energy. For example, Appendix E provides a tool that helps local governments self assess their energy programs.

2. LEVERAGING LOCAL PLANNING AND DEVELOPMENT AUTHORITY TO ACHIEVE ENERGY EFFICIENCY

California has some of the strongest planning and development laws in the U.S. for advancing energy efficiency at the local level. Yet even the most progressive local governments encounter significant barriers to achieving the 2008 California Long Term Energy Efficiency Strategic Plan goals. This chapter examines those barriers and ways that local governments can overcome them.

Some local governments are already reinforcing and advancing the Strategic Plan's energy efficiency objectives. Among other actions, they are adopting green building and advanced energy codes and linking them to AB32 targets, expediting the approval processes for green buildings, developing carrot-and-stick approaches to local zoning to encourage energy efficiency, and teaming up with other local governments and the State in coordinated regional energy efficiency efforts.

Our research identified many local government practices that can be leveraged by others. Jurisdictions across California are experimenting with Strategic Plan actions; there is no one planning approach and often several are used together. Most communities that are successfully responding to the Strategic Plan requirements start with short-term energy actions that meet their particular needs, and build on them. The communities performing at the highest levels are integrating sustainability into their General Plans.

The following sections describe our key findings that can be leveraged across local governments.

2-1. LOCAL GOVERNMENTS ARE IN THE FRONT LINE IN THE FIGHT AGAINST CLIMATE CHANGE

The State's 480 cities and 58 counties are required by law[2] to plan for future development. Each serves as the permitting agency that approves new construction projects, which significantly impact energy usage. For example, land use zoning influences daily commuting distances, which greatly affect the use of energy in the transportation sector, the largest source of GHGs in California.

Until recently, energy efficiency was not a priority on local government planning agendas. However, California's Global Warming Solutions Act of 2006 (AB32), which requires a statewide reduction in greenhouse gas emissions, has pushed it to the top.

The State of California's AB32's Scoping Plan states that "local governments are essential partners in achieving California's goals to reduce greenhouse gas emissions.

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[2]California Government Code §65040.2

They have broad influence and, in some cases, exclusive authority over activities that contribute to significant direct and indirect greenhouse gas emissions through their planning and permitting processes, local ordinances, outreach and education efforts, and municipal operations."

The Scoping Plan would set higher and new targets for statewide annual energy demand reductions of 32,000 gigawatt hours and 800 million therms from business as usual by 2020. These targets exceed existing efficiency targets established by CPUC for the investor-owned utilities due to the inclusion of innovative strategies above traditional utility programs. The Plan asserts that achieving the State's energy efficiency targets will require coordinated efforts from the State, the federal government, energy companies and customers. And it will require redoubled efforts to target industrial, agricultural, commercial, and residential end-use sectors, comprised of both innovative new initiatives that have been embraced by the CEC's energy policy reports and the long term strategic plan, and improvements to California's traditional approaches of improved building standards and utility programs.

While the targets for building energy efficiency are not specifically directed at local governments, California cannot meet them without drastic improvements in building efficiency innovation, which is largely driven at the local level.

The California Air Resources Board is also revising its regulatory guidance to ensure that GHG reductions are built into local government planning and development processes through implementing 2008 legislation commonly referred to as California's Climate Change Smart Growth Bill (SB 375). SB 375 seeks to reduce greenhouse gas emissions by creating incentives, and in some cases implicit mandates, for smarter land use and development choices by local governments and developers thereby seeking to reduce vehicle miles traveled.

Moreover, the State Attorney General's Office and the courts are requiring that local government address GHG reduction goals and impacts in General Plans, other local development plans and approvals, environmental impact reports (EIRs), and other documents prepared under the California Environmental Quality Act (CEQA).

To compound the sense of urgency, federal ozone standards proposed in January 2010[3] are expected to throw dozens of California counties out of air quality compliance. This puts additional pressure on counties to reduce vehicle travel or risk losing federal transportation funds.

As local governments have sought to reduce GHG emissions and encourage sustainability, they have used both old and new planning tools, including:

- General Plans, Specific Plans and associated zoning ordinances, which are staples of local government planning.

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[3] Proposed Rule, Federal Register, January 19, 2010 that would change 40 Code of Federal Regulations, Parts 50 and 58

- Local Energy Action Plans, which are still fairly rare, that specify energy management policies.

- Climate Action Plans, which are becoming increasingly common.

- Sustainability Plans, which are being experimented with in a few pioneering communities.

These local government plans are important to reducing GHGs for two reasons: (1) to indicate that the local government is committed to leadership in GHG reduction; and (2) to lay a policy foundation for other steps, such as adopting "green" codes or changing zoning codes to favor energy-efficient buildings. Without policy direction at the plan level, local governments are unlikely to take the implementation steps necessary to achieve real energy efficiency.

2-2. IDEAS AND PRACTICES THAT ARE ADVANCING ENERGY EFFICIENCY

How can local government plans create the capacity to implement energy efficiency within the communities they serve? The following findings from a review of current industry literature and ten in-depth interviews with planning and energy managers describe how some local governments in California are using planning and development mechanisms to address energy efficiency and GHG reduction goals.

2.2.1 Jurisdictions across California are experimenting with Strategic Plan actions

Across California, there are more than 100 examples of general and specific plans, zoning and building codes, energy, climate and sustainability plans—together or separately—that advance the energy efficiency goals in the Strategic Plan.

- Every jurisdiction revising its general plan is addressing climate change and energy to meet community needs and to comply with the California Attorney General's guidelines.

- Climate change impacts are being assessed in projects subject to the California Environmental Quality Act (CEQA), and communities are requiring mitigation for any significant climate impacts, including energy and transportation measures.

- Green building programs, including codes that exceed Title 24, exist in nearly 40 cities and towns. San Francisco, Berkeley, Palm Desert, and more than a dozen other communities have green building codes that exceed the "green code" adopted in January 2010 by the California Energy Commission.

- More than 13 communities have climate action plans.

- A few pioneering cities, such as Fresno and Roseville, are experimenting with specific plans that integrate energy and other green design and building standards into development plans.

- More than five municipalities have sustainability plans, and many more have integrated sustainability as a theme into their general plan updates.
- At least 198 communities in California are members of ICLEI. This is 36% of ICLEI's total U.S. membership of 545.

Appendices C and D provide details on these and other examples.

2.2.1.1 There is no one planning approach

While successful communities tend to have strong leadership, good stakeholder engagement and sound planning, any of the planning mechanisms are good ways to start.

The planning mechanisms are not mutually exclusive, but complementary. For example, energy goals and standards in a general plan are enacted and enforced in building and energy zoning codes.

Often, the plans are closely related, and no single one achieves energy reductions on its own. They often cannot be written independent of one another. For example, some energy reduction measures in a Climate Action Plan should be incorporated into the General Plan to set the policy direction for energy reduction activities (e.g., as part of the Energy Element of the General Plan, or integrated into appropriate other elements).

These plans and codes will have no impact on energy efficiency without parallel implementing actions, including permitting, enforcement, committed leadership and staff, and financial resources. Figure 2-1 illustrates the resources that need to come together to implement any planning and zoning action, regardless of the mechanism(s) a community chooses to advance energy efficiency.

**Figure 2-1 -
An Implementation Framework for Energy Efficiency Planning[4]**
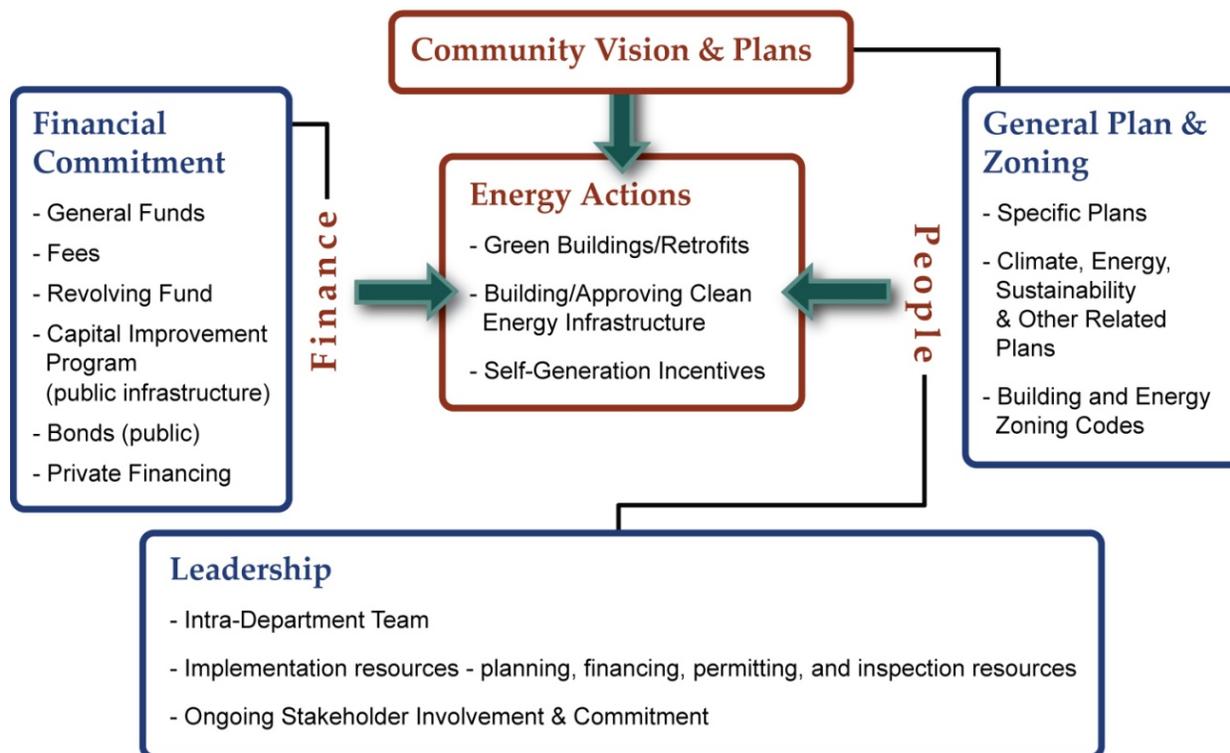
Appendix G provides an overview of the various local government plans and how they are used to plan for and authorize energy actions. Appendix D specifically provides a detailed summary of the purposes, applications, advantages, and disadvantages of some local energy-related plans.

Because energy management spans multiple local government departments, they all must work together to achieve a successful approach to energy efficiency. Interdepartmental activities include planning and capital improvement, shifting funds to the city's energy-related projects, and teaming together to work with developers on clean energy infrastructure. For example, the City of Salinas created an interdepartmental team of directors from the Planning, Building and Economic Development departments to work hand in hand with the mayor on economic development-focused energy planning and investments.

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[4] SAIC

2.2.1.2 Most communities start with short-term energy actions that meet their particular needs

To begin addressing energy action requirements, most communities in our sample started with something simple—passing an energy code with higher standards than Title 24, or a green building code. In many cases, the first actions involved developers working voluntarily with municipal staff.

For example, in Rohnert Park, developers and City staff experimented successfully with green building standards on a high profile downtown development. This success showed that green development could be economically feasible, which paved the way for a mandatory green building ordinance in 2006. Further, the City started to update its general plan to add a sustainability element (see the discussion on Rohnert Park, California in the box below). Our review found that developing energy ordinances often creates a success story that can help support broader action, such as developing a climate action plan (CAP) or energy action plan.

Developing any energy efficiency capacity mechanism may be best prompted by specific opportunities or risks. For example, Pleasanton developed an energy ordinance to respond to community concerns about proposed power plants. The process included the creation of a stakeholder group on energy issues that led to creating a green building ordinance and to integrating a sustainability theme into the City's general plan update. In Chula Vista and San Francisco, energy and climate planning were driven partly by concerns about the environmental impacts of existing power plants. Communities should look for opportunities to leverage events and situations that create momentum.

2.2.1.3 General Plan Updates Now Often Consider Energy and Greenhouse Gas Reduction

All cities and counties in California must adopt and periodically revise a General Plan. Since 2007, energy efficiency has become a more important part of General Plan updates as a result of the legal settlement between San Bernardino County and the California Attorney General's Office. San Bernardino County agreed to implement AB 32 by amending its General Plan to minimize future greenhouse gas emissions. The General Plan can be a vehicle for energy efficiency policies, both for county operations (e.g. building, fleet, etc.) and for land use (e.g. reducing the need for driving). The Attorney General's Office now routinely contacts municipalities about addressing climate change in upcoming General Plan updates.

Rohnert Park, California

The City of Rohnert Park is updating its General Plan with a new sustainability element. Stakeholder workshops have captured preliminary input on:

- GHG emissions – such as city owned and managed renewable generation
- Transportation – clean or electric public transportation
- Sustainable Materials – such as a local building materials exchange program
- Green building – including a retrofit program for improving efficiency and renewable energy
- Waste – review current waste disposal policy

When the General Plan undergoes a total update the City may consider adjusting other elements to reflect these issues.

General Plan updates provide an opportunity for staff, political leadership, and community stakeholders to address or build a consensus on climate, energy, and sustainability issues, particularly if supported by the Attorney General's interest. In many cases, the General Plan update process has created the political support and the organizational capacity for more specific actions, such as CAPs or green building ordinances.

Because General Plans are typically updated on five-year cycles, waiting for a General Plan update may delay progress on energy issues. Nevertheless, a recent survey by the Public Policy Institute of California found General Plans to be the most common tool being used by local governments to address such issues, as shown in Figure 2-2.

A key finding is that the CPUC and other state agencies should encourage and support municipalities not only in updating their general plans, but also in other actions, such as developing CAPs, green building codes, and CEQA policies, provided these other actions advance implementing energy efficiency in a timely manner for the jurisdiction.

Figure 2-2 – Percentage of California communities addressing climate change in planning and regulatory tools

Source: Public Policy Institute of California[5]

- *Figure reports the share of jurisdictions that have already done or plan to incorporate climate-related measures.*
- *The sample size ranges from 301 to 303 local governments in California.*
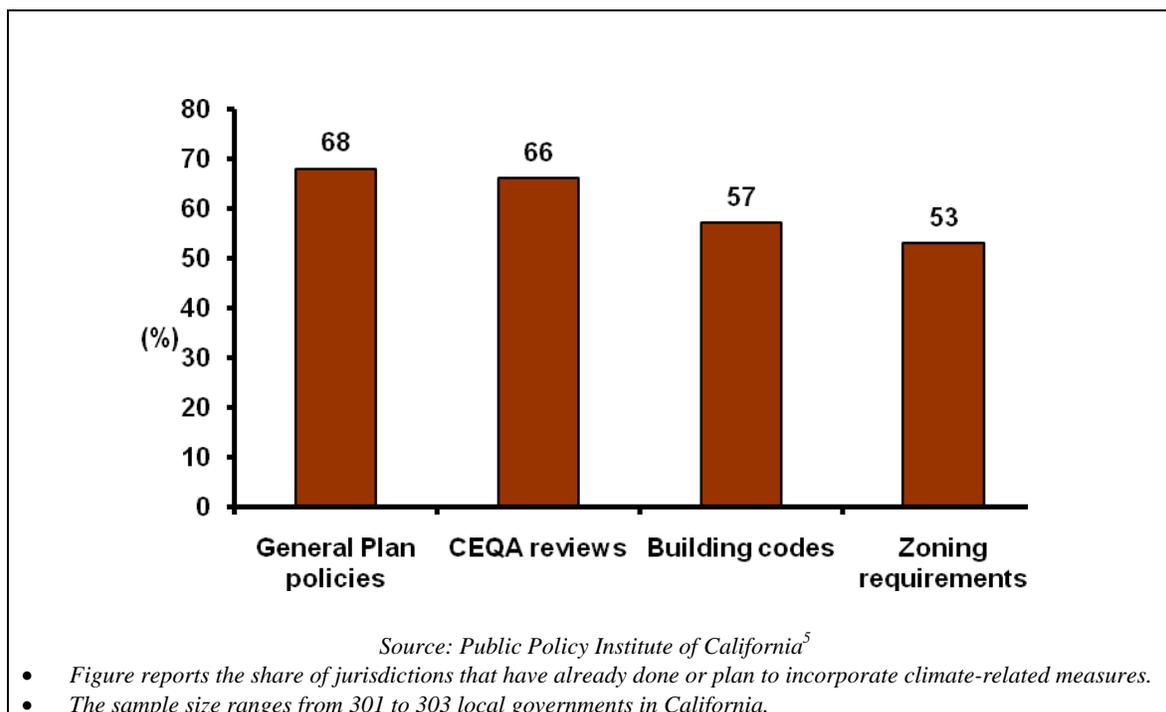
2.2.1.4 Use Climate Action Plans as a mechanism to institute energy efficiency

Climate change and greenhouse gas emissions have become a priority for local governments, and climate action plans serve as the key catalyst for setting energy reduction goals. This is happening in part because greenhouse gas emissions can be represented with a metric by which members of a community can track environmental impacts.

A popular approach for local governments to create opportunities for energy efficiency is to develop a CAP to quantify GHGs and to set policies to reduce those emissions. A CAP can vary in detail and content, and can:

- Provide a framework for GHG reduction and key actions to meet a reduction target.
- Report the inventory of GHG emissions in the community (the community's "carbon footprint").
- Establish a clear link between GHG emissions and management of resources such as energy, water, and waste.
- Provide a public policy statement that acknowledges the issue of climate change.

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[5] Climate Policy at the Local Level: A Survey of California's Cities and Counties. Public Policy Institute of California (2008).

- Demonstrate leadership on climate change.

With directives for climate change coming from many regulatory bodies (e.g., California Air Resources Board) and voluntary bodies (e.g., California Climate Action Registry), the importance of understanding the quantity of metric tons of GHG produced per kilowatt hour of electricity and therm of natural gas has become imperative for local governments. These quantifications make the connection between energy and climate apparent to local governments and help make energy savings a priority for municipalities.

A CAP can address both municipal emissions (i.e., those within the control of the local government) and community-wide emissions (i.e., those of residents/businesses). Many cities have demonstrated leadership by reducing municipal emissions before embarking on community-wide emission reduction activities.

While CAPs often lack full implementation detail, the 13 CAPs we reviewed all included specific energy actions, such as passing a commercial energy ordinance or implementing a municipal retrofit program. In many communities, the CAP is the first planning document that addresses detailed energy actions. A CAP provides an opportunity for the CPUC, utilities, and other partners to help municipalities create measureable, implementable actions (see the discussion on Irvine, California in the box below).

Further, because CAPs and their required reporting processes are visible to the community and to the State (for example, through the Climate Action Registry), they provide the best planning mechanism that we reviewed for holding a community accountable to the measurable goals it has set, such as specific carbon intensity reductions.

Irvine

In developing Irvine's Energy Plan, GHG reduction was seen as a key goal, driven by the introduction of California's AB32 Climate Change Scoping Plan in 2008 that provides the California Air Resources Board's first regulatory guidance on how it will implement AB32. In addition to increasing energy efficiency efforts and renewable energy supply, the Energy Plan also states a goal to "reduce greenhouse gas emissions Citywide to 1990 levels by 2020, in accordance with AB 32" and goes on to state "achievement of energy efficiency and renewable energy goals will contribute greatly to this goal."

The City identified that a community-wide GHG inventory and Climate Action Plan was the next important step to achieving its goals. A reduction target of 30% below 1990 GHG levels by 2020 was set. In developing its Climate Action Plan, Irvine has identified four objectives:

- Build on adopted Energy Plan
- Establish quantifiable tool for project review under CEQA
- Develop tiers of acceptable GHG emissions levels for project review under CEQA
- Reduce GHG emissions associated with land use and transportation planning

The City's focus on reducing energy use through land use and transportation planning led to unique elements of the CAP, namely the ability to:

- Examine GHGs at a planning area level through the use of GIS
- Prioritize future planning projects according to their GHG impacts
- Involve stakeholders
- Monitor and verify via a web-based tool

Irvine and other communities such as Redlands, California and Longmont, Colorado, are using geographic information systems (GIS) to link GHG emissions to specific land use areas to support planning and permitting decisions.

Spatial energy use data from utilities will be needed in order to make integrated development decisions that, for example, relate land use density standards for a new development area to energy use, commute patterns and GHG emissions. Southern California Edison (SCE) is supporting the City of Irvine with a pilot project to further develop data protocols and to further develop this approach.

2.2.1.5 More attention should be given to specifying performance indicators in planning documents to support energy performance

How effectively do CAPs serve as a vehicle for energy action planning? We reviewed CAPs for 13 California communities, and found that very few identify the framework to actually implement and account for actions including responsible staff, funding sources, and reporting process. While many of the plans do list some specific energy actions, most lack a plan to further evaluate and/or fund them.

This data is presented in Table 2-1. While each CAP sets overall GHG reduction goals and specifies energy efficiency measures (for example, new commercial existing

building requirements), only about a third clearly specified departmental responsibilities, and only three set forth an implementation strategy.

While there is no common format for incorporating performance metrics for various energy and climate strategies, goals in CAPs, such as GHG reductions, are emerging as the key and most visible performance indicators for energy reductions. This may be due to the fact that a GHG inventory is generally conducted on an annual basis in order to determine progress towards reduction targets, set by the city or county, or in California's case, the State under AB32.

Table 2-1: Climate Action Plans for 13 California Communities*

City	GHG Reduction Targets	EE Actions	Identifies Responsible Entity	Implementation Process Established	Milestones	Performance Indicators	Funding Sources Identified	Renewable Energy Goals	Green Building Ordinances
Alameda	✓	✓			✓		✓	✓	✓
Albany	✓	✓	✓		✓	✓	✓	✓	✓
Arcata	✓	✓	✓		✓			✓	✓
Berkeley	✓	✓	✓	✓	✓	✓	✓	✓	✓
Chula Vista	✓	✓	✓	✓	✓				✓
Fremont	✓	✓			✓		✓	✓	✓
Los Angeles	✓	✓						✓	✓
Marin County	✓	✓			✓	✓			
San Diego	✓	✓						✓	✓
Sacramento	✓	✓		✓	✓			✓	✓
San Francisco	✓	✓	✓			✓	✓	✓	✓
San Rafael	✓	✓							✓
Sonoma County	✓	✓					✓		✓

*Appendix D provides the detailed review of each CAP.

2.2.1.6 *Specific Plans offer opportunities for innovation and action*

Most local governments in California use Specific Plans to guide large new developments or redevelopments. Specific Plans are a hybrid document, containing both land use policies and the equivalent of zoning codes.

Some communities, such as Fresno, have used the Specific Plan process to lay out an integrated approach to energy efficiency and greenhouse gas emissions reduction in new development areas (see the discussion on the Southeast Fresno Growth Area in the box below). These plans, including the zoning regulations, maps, and plans for specific development projects, offer a planning and decision-making approach that creates opportunities for green buildings and more fully self-reliant and smart developments (i.e., a combination of transit-oriented development, a jobs-housing nexus, energy self-generation, and efficiency). Specific plans are a key mechanism to achieve the Strategic Plan goal for all new development to be zero net energy by 2020.

Southeast Fresno Growth Area

The City of Fresno has identified the 9,000-acre Southeast Growth Area as the City's main growth location for the next decade or more. In creating the Specific Plan for Southeast Fresno, the City and its planning consultants created three alternative scenarios and quantified household energy use, vehicle miles traveled, and greenhouse gas emissions from both housing and transportation in helping to determine which alternative the City should adopt. The sustainability targets for the Specific Plan include:

- Transit: within ¼ mile of every resident
- Mobile Emissions: reduce by 50%
- Air Quality: meet standards by 2015
- Commute Trips: reduce Single Occupancy Vehicles by 20%
- Greenhouse Gas: reduce emissions by 25%
- Water Demand: reduce use and increase recycling

No more specific information on building energy measures is available at this stage of the plan.

2.2.1.7 *Energy Plans, or other documents, that specify measureable energy actions are critical*

The municipalities that have created energy plans are among those with the strongest capacity for or history of energy action. This suggests that energy plans could represent a more advanced mechanism for a community. CAPs may serve as a catalyst for an energy plan, because they help a community understand the importance of energy efficiency and renewable energy and the need for a specific, implementable energy action plan. If a CAP does not include an energy action plan within itself, it typically recommends that the municipality prepare an energy action plan.

The risk that the CAPs will fail to set specific, implementable, and measurable goals and actions for energy can be reduced if the CPUC and utilities work closely with municipalities as CAPs are developed. CPUC and utility policies and actions that incent or provide funding to communities to implement energy actions will lead to more interest in creating energy plans, particularly if the plans are implementation mechanisms for CAPs or sustainability plans that involve a high level of community participation and public progress reports.

For example, San Diego Gas and Electric is getting interest from several cities to participate in a program that provides free technical assistance and road-mapping (linking strategy to future actions and incorporating a plan for needed resources) to cities interested in creating energy plans. (See the discussion on San Diego, California in the box below)

San Diego

The latest version of the San Diego's Regional Energy Infrastructure Study identified goals of a 50-MW increase in renewable energy by 2013, and a 15-MW reduction in consumption by 2020. The overall goal is for 100 MW in clean energy capacity. This study was prompted by news of federal stimulus funds (e.g., grants and weatherization). The plan was sent to energy-hungry operations such as the wastewater agency to include their goals for energy reduction. The City envisions that the energy plan will become a part of the CAP in the future. Key energy efficiency and demand reduction programs include:

Residential

- Retrofit program for existing homes
- Title 24 Plus for New Construction
- Photovoltaics for both new and existing homes
- Advanced metering[6] and control (for larger users)
- Condition-of-building sale[7]

Commercial and Industrial (C&I)

- Demand Response
- High efficiency motors
- High efficiency lighting
- Building Retrofit Program

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[6] Advanced Metering refers to systems that measure, collect, and analyze energy usage, and interact with devices such as electricity meters, gas meters, heat meters, and water meters, through various communication media either on request (on-demand) or on pre-defined schedules.

[7] Condition of Building Sale refers to requirements that are placed on the seller to complete prior to sale of the building, for example, retrofits such as insulation

2.2.1.8 Sustainability Plans or sustainability-focused General Plans offer the best mechanism for long-term energy action

Sustainability plans (whether stand-alone or integrated in a General Plan) generally come from communities with the most capacity for long-term action. Effective sustainability plans set forth community-wide goals, actions, and performance reporting, and create opportunities for integration of energy, environment, economic development, and community branding in the way that a business might create a vision and a business model around sustainability. Communities are beginning to set that vision, in part to better compete for new industries and high-value development.

Some cities have adopted sustainability plans or programs, or have included a sustainability element in their General Plan. Sustainability refers to overall, long-term environmental protection. It is often combined with a strategy for prosperity, and so is not limited to energy efficiency or greenhouse gas emissions. Sustainability programs often set quantitative goals for waste and urban storm water runoff, greenhouse gas emissions, energy consumption, and also for economic growth, housing, and jobs. Sustainability plans usually address the "triple bottom line" of economic, social, and environmental goals and provide indicators to track progress.[8]

Anaheim, Oakland, Long Beach, Orange County, Pasadena, Pleasanton, Portland, San Diego, San Jose, Sacramento, San Francisco, Salinas, and Santa Monica all have or are developing sustainability plans. (See the discussion on Salinas, California and various cities in the box below) Creating a sustainability plan is the broadest statement of environmental stewardship and shows that communities fully recognize the economic, social, and environmental interconnections, dependences, and synergistic opportunities within themselves. These plans are usually linked to attracting new green businesses and industries.

Communities engaged in sustainability planning often have political support for energy and climate actions. A sustainability plan fosters a willingness to explore more innovative actions, and communities with such plans may be positioning themselves as good potential partners for the CPUC and others to work with on zero net energy pilots, advanced green codes, and technology demonstration programs.

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[8] Many of the communities listed in this chapter have aligned their performance indicators and reporting metrics with national and international standards such as: ICLEI STAR Community Index, Global Reporting Initiative (GRI) Sustainability Reporting Guidelines, World Bank Global City Indicators, or the United Nations Indicators of Sustainable Development and the United Nations Environmental Accords. In Southern California, the Southern California Association of Governments (SCAG) has a collaborative program to advance community sustainability in order to support compliance with AB 32 and SB 375.

Salinas

The City of Salinas is a traditionally agricultural community that recognizes the need to address long-term sustainability for the community. It has adopted a plan for environmentally responsible growth and "green" job creation.

The *2009 Salinas Valley Economic Development Strategic Vision and Recommended Action Plan* strengthens the community's capacity for long-term energy efficiency within a larger concept of community livability. The plan identifies steps to create jobs, especially higher paying jobs and those associated with alternative energy industries.

To manage the growth that the City is encouraging to improve the overall quality of life for its residents, Salinas is planning for high density and mixed-use development and redevelopment, and researching and implementing other transportation and building energy efficiency initiatives.

Portland, San Diego, San Jose and Santa Monica

In the early 1990s, the US Department Of Energy provided funding to Portland, San Jose and Santa Monica to develop Sustainable City programs. All three adopted a program in 1994 and they continue to be leaders in the sustainability arena.

Santa Monica's Sustainable City Plan represents its vision as a city and is aligned with other planning documents. Santa Monica has updated its plan four times, and tracks and reports on several key sustainability indicators. The Sustainable City Plan web site shows the City's progress report.

In 1998, the mayor of San Diego provided a directive to develop a sustainability plan and a key champion led the efforts to create a plan of action for sustainability. Over the years, San Diego has built on this vision to create an energy plan and the San Diego Climate Protection Action Plan. The Climate Protection Action Plan is separate from the general plan but it is referenced in it. Because it is referenced in the general plan, it is institutionalized and must be updated on a regular basis. San Diego also uses community sustainability indicators, which are referenced in the general plan, such as per capital energy use.

2.2.2　Drivers to Planning Actions that Create Capacity for Energy Efficiency

The CEESP[9] notes that local governments in California are at "different levels of commitment and capacity" when planning for energy and climate. But what makes some local governments more committed than others? The interviews and our analysis suggest that the main drivers are: fear of litigation; political leadership; legislative requirements; and public support and demands.

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[9] See appendices E and F for the Community Capacity Self Assessment Tool, and CEESP Local Government Chapter Goals

2.2.2.1 The threat of litigation may incent planning actions on energy and climate change

The threat of litigation may drive responses to specific environmental challenges or lead to a process for consensus-based change. A very significant event in this respect was the Attorney General's lawsuit against San Bernardino County over AB32. A similar lawsuit was also served on the City of Stockton. If AB32 did not exist, there would not be the premise for litigation. While AB32 does not specify direct mandates for local governments, and SB375 is still being translated into specific requirements, the intent of these laws is and should be taken seriously by local governments in California.

2.2.2.2 Public leadership and commitment is a driver for energy action

All of the communities we interviewed cited public leadership and commitment as a prerequisite for taking action.

For example, in 2005 the City Of San Rafael's Mayor Al Boro signed the US Conference of Mayors Climate Projection Agreement pledging the City to reducing GHG emissions in accord with the Kyoto Protocol. This was a key driver for the City to address climate change through energy efficiency improvements within their own buildings and to develop green building standards and an aggressive climate action plan.

2.2.2.3 Climate legislation is an important motivator

AB32 and SB375 have spurred many local governments to identify their climate impacts and the opportunities to reduce energy use and GHG emissions. The City of Irvine had previously developed an Energy Plan and had only talked about a Climate Action Plan – until AB32 passed. All of our interviewees citied legislation as an important motivator.

2.2.2.4 Cities and counties are driven by community support and demands for energy and climate action

In many communities, strong public interest has prompted local governments to plan to reduce their climate and energy impacts. Often, communities respond to a specific issue and, in doing so, start a process for long-term planning.

For example, the City of Pleasanton's climate action efforts began in 2003, when a Generator Siting Ordinance was initiated in response to several power plant proposals. The ordinance enacted regulations for all types and sizes of generators, including photovoltaic facilities, fuel cells, wind power facilities, gas generators, and emergency generators. The power plant proposals also led to the City developing an energy plan.

2.2.3 Barriers and Difficulties to Using Planning and Development Mechanisms

Even as many communities have made significant progress toward energy efficiency and greenhouse gas reduction, they face several barriers that may delay or curtail progress.

2.2.3.1 Communities know how to find expertise but need funding to do so

The interrelationships between energy, environmental, planning, development, and the economy are complex. To sort through them, communities need experts.

Communities are able to find the expertise, but the real barrier is having the funding when they need it to do the work. Even when funds are identified (e.g., through a grant), communities experience delays in funding.

2.2.3.2 Lack of political champions for energy at the elected level

Some communities suffer from a lack of political commitment. If a city lacks a political champion for climate issues, it is difficult to take action. Leadership that exists only at the staff level often struggles for attention and support from elected officials.

Each of the communities we examined had support from elected officials who had attended conferences on energy and climate, sat on regional or statewide committees, and engaged in similar activities to demonstrate energy and climate leadership. In fact, awareness and support for energy and climate initiatives is becoming a political imperative for political candidates in many regions.

Some communities expressed reluctance to act on energy because of concerns about impacts on growth, development, and the local economy. Often, changes to the business-as-usual way of planning are viewed as adversely affecting jobs and opportunities for development. On the other hand, some interviewees, such as Portland, identified energy efficiency and clean energy as economic development opportunities for their cities. So, depending on a community's perspective and interest and demand for sustainable solutions, they may see energy efficiency and innovation as an opportunity or a cost or investment they can't afford.

2.2.3.3 Lack of ownership and accountability for climate issues within local government

Many communities assign energy issues to a single department, such as the planning department. This practice may not give the effort the comprehensive stature needed to address the complexities of energy-related issues or get the commitment needed from all department heads. So, while having a leader, such as an energy czar, is critical, empowering the organization as a whole is also needed.

2.2.3.4 Policy uncertainty over AB32, SB375, and like legislation makes local action more challenging

Municipalities are very uncertain about how to implement statewide climate legislation such as AB32 and SB375, which makes defining goals and identifying reduction activities difficult. There is also uncertainty around other energy related legislation, such as AB 811 (property tax financing), and even how the courts and Attorney General's office are interpreting CEQA and the General Planning law regarding climate. The CPUC and other state agencies should work to clarify issues and also the local governments themselves should participate in workgroups to regularly share what they know.

2.2.3.5 It's still new

Clean energy, climate change, and sustainability are relatively new concepts that span different operations and responsibilities. Many smaller agencies find it difficult to understand the issues fully and to develop an awareness of what they can do about it. In some communities, taking action on climate issues is a political risk. To reduce this risk, again the best solution is to share information and collaborate closely with other localities on how to make energy and climate issues a political advantage or at least less risky for politicians.

2.2.4 Characteristics of Successful Community Energy Programs

2.2.4.1 A top-down commitment to reduce energy consumption and GHG emissions

Communities leading energy action are committed, plan well, and build internal capacity. Government leadership that publicly commits to energy or carbon reduction (for example, by signing the U.S. Conference of Mayors Climate Protection Agreement) demonstrates action towards energy reduction. Nine of the ten cities that we interviewed have signed the Mayors' Agreement, which a majority of respondents cited as a crucial step in creating action around energy initiatives.

Once civic leadership has made a visible commitment, other municipal organizations are more likely to feel empowered to develop practical implementation measures for greenhouse gas reductions and energy savings.

All of the cities interviewed are members of ICLEI's climate protection program, further demonstrating the importance that local governments place on making a commitment to energy and greenhouse gas reduction.

The most effective communities not only make policy and planning commitments but "lead by example" by improving the energy use and greening of their own buildings and infrastructure. All of the communities interviewed are actively conducting energy audits

of their own buildings. Over 70% require LEED certification for new municipal buildings, and over 50% have implemented energy-reducing retrofits.

Five of the ten communities partnered with the utilities and the CPUC in energy efficiency programs between 2006 and 2009, and have committed to continuing this partnership through 2012. Leading by example is a key strategy in the Strategic Plan, because it helps communities learn energy efficiency from their own experiences, creates credibility, and contributes to achieving the energy, climate, and sustainability goals implicit in AB32.

2.2.4.2 Using a strong stakeholder process

Any broadly-supported energy-reducing mechanism we examined was developed using a strong stakeholder process. The stakeholder process used by a community lays the groundwork for building awareness and long-term support for energy actions.

For example, the climate change issue was brought to the Sonoma County Board of Supervisors by a small group of champions including environmentally-minded supervisors, a local solar movement, and three or four environmental groups, including the local chapter of the Sierra Club. The County developed a CAP cooperatively with cities, developers, environmental groups, and the general public. This process has led to broad support for the plan and implementation actions.

2.2.4.3 Drawing on people with energy expertise

There is a great deal of expertise available to local governments in California to help them take energy action. Programs and groups such as ICLEI and Cool California, and certification programs like Build it Green and LEED all provide guidance to local governments. In addition, input from consultants, as well as advice from other cities, are popular methods for obtaining the expertise to identify energy efficiency activities.

One city commented that help from ICLEI was more useful for developing a greenhouse gas inventory than for developing a climate action plan for GHG reductions. The general message from the interviews is that municipalities know how to find the expertise they need, but their progress is often slowed by struggling to find funding for these experts, or their plans are lacking specifics because they lack the resources to develop them.

2.2.4.4 Training necessary staff/ workforce in relevant programs

Networking with other local governments to learn about energy efficiency initiatives is effective. Several interviewees mentioned that municipal leaders had gained knowledge on the importance of energy efficiency through conferences, speeches, talks and networking with peers. On return from these activities, local government leadership often cited energy as a priority for their community.

2.2.4.5 Utilizing web-based solutions to support planning and citizen action

The internet is an important tool for engaging citizens on energy and climate change. For example, the City and County of San Francisco partnered with Cisco's Connected Urban Development program to create the Urban EcoMap website (more information in Appendix C). The website illustrates the carbon footprint of each neighborhood and allows citizens to identify personal greenhouse gas reduction measures, including energy efficiency, to reduce their GHG contribution. This has allowed the City to engage individuals on the issue of climate change and how energy efficiency relates to GHG emissions. Other social networking sites such as Facebook are being utilized to motivate individuals to act.

2-3. RECOMMENDATIONS

The following are recommendations on important goals and needs to address the barriers to achieving the CEESP with respect to planning and development. Appendix A presents detailed recommendations.

PL.1: Communities Make Leadership Commitment.
PL.2: Localities Incorporate Energy into General Plan Updates.
PL.3: Localities Adopt Specific Energy Action Plans.
PL.4: Create Templates and Tools for General Plans, Energy, Climate and
        Sustainability Plans for local energy planning that are capacity based.
PL.5: Develop Strategic Planning Process Tools for Local Governments.

3. INCREASING ENERGY EFFICIENCY IN GOVERNMENT BUILDINGS

Energy efficiency is now a priority for many local governments. The 2008 California Long Term Energy Efficiency Strategic Plan encourages local governments to adopt specific efficiency goals for their buildings. It also encourages them to showcase innovative programs for achieving zero net energy buildings, develop showcase sites, implement LEED policies, and create budget processes that allow energy efficiency savings to be returned to the departments that generated them.

Very often, efficiency projects for government buildings must compete for budget and other resources. Still, some leading local governments have found ways to improve the efficiency of their own buildings. This chapter reports on successes and challenges that local governments in California have faced as they try to improve energy efficiency in their facilities.

3-1.   THE IMPORTANCE OF LEADING BY EXAMPLE

The Strategic Plan stresses that local government should "lead by example." By implementing efficiency projects in their own buildings, cities and counties will learn more about energy efficiency opportunities and develop the credibility to enact and implement advanced energy codes and standards in their communities.

Local governments that lead in the development of municipal energy efficiency often have dedicated energy or sustainability managers who serve as champions for energy efficiency. They benchmark their buildings, control building energy use and costs using advanced systems, conduct audits, prioritize projects, and develop multi-year plans.

The forty or so local communities that participate in the CPUC's Local Government Partnership (LGP) programs are among the leaders. Between 2010 and 2012, many of these communities will retrofit or retro-commission their facilities, with help from their investor-owned utility (IOU) partners. Some local governments have developed showcase buildings that are highly efficient and incorporate renewables to demonstrate zero-net energy concepts. Many local governments are receiving Department of Energy Efficiency and Conservation Block Grants that will allow them to pursue energy efficiency.

3-2.   IDEAS AND PRACTICES TO IMPROVE ENERGY EFFICIENCY IN LOCAL GOVERNMENT BUILDINGS[10]

If local governments are able to do just one thing on energy, they should develop and implement an energy management plan for their own buildings. Developing and implementing an energy management plan lays a foundation of experience and credibility to be a leader for the rest of the community.

Many of the actions a local government takes depend on the size of the community it serves and the scope of work involved. Smaller communities may need to form partnerships with other communities and the utilities to develop expertise and share the costs of implementation.

3.2.1   Best Practices for Local Government Initiatives

3.2.1.1 *Create an energy advisory committee or working group*

The first step to improve the energy efficiency of local government buildings is to establish an energy committee or working group to clearly define the community's goals. The group should be small and composed of key stakeholders, including a utility representative and one or two individuals with technical expertise. This working group can be for a single community or for a group of communities pooling their resources. The group should set specific timelines for development of the plan, implementation of elements of the plan, and establishing milestones and metrics to measure success.

3.2.1.2 *Employ an energy manager*

Executive leadership is necessary, but communities must have departmental leadership, adequate staff, and/or consultant support to effectively plan for and implement government building energy projects. Having a dedicated energy manager or other "energy champion" to plan and implement energy efficiency projects is essential. Most jurisdictions prefer a staff member, rather than a contractor, to serve in this role.

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[10] This chapter's findings are based on three sets of interview data. The first set is from interviews for this study (Local Government Strategic Energy Action Report, and a follow-up mail survey of managers from 12 communities. Each manager was asked questions about how they are organized to address energy efficiency, their management processes and systems, and their priority measures. The second source of data is the 16 interviews of the Association of Bay Area Government (ABAG) 2006-2008 energy audit program participants that were conducted by the CPUC for the Non-Resource Impact Evaluation published in January 2010. We refer to this source in this chapter as the ABAG Survey or Study. The communities interviewed for this report and for the ABAG Survey are presented in Appendix I.

The energy manager might also oversee the purchase of energy and manage its use. Smaller municipalities may share a manager and pool resources, expertise, funding, and financing.

Because financial and staffing constraints limit the ability of cities and counties to perform energy planning, existing staff is often asked to add that responsibility. This approach makes energy management appear secondary, and can significantly limit the effectiveness of the energy manager. A dedicated energy manager will have much more success in achieving Strategic Plan goals. He or she can guide the assessments, help with planning, and spend the requisite time developing the business case that shows a positive return on efficiency investments.

The energy manager can push energy efficiency projects through the system in several ways, including:

- Filling staff resource gaps.

- Educating parties about the benefits of the energy efficiency projects.

- Identifying further needs or next steps after a project is complete.

- Managing internal politics.

- Identifying challenges to implementing energy efficiency and opportunities for overcoming them.

The energy manager should be familiar with the internal requirements for implementing energy efficiency projects (e.g., required return on investment or other analysis) and be prepared with the technical, purchasing, and organizational knowledge to help get projects approved and installed. Five communities—or about half of those interviewed in depth—have an energy manager, and another is planning to hire one within the next 12 months.

In most municipal governments, a director or senior manager from a department such as planning, public works, or buildings department drives the government building energy program. While a split responsibility is not ideal, communities can still reach their energy goals if there is staff or a consultant to manage the projects. To be successful, however, the communities we interviewed found that at least one person must be able to focus on energy issues. A person with competing priorities will be ineffective in advancing energy goals.

Marin County, California created an Energy Management Office staffed by a consultant who partnered with city managers, facilities personnel, and contractors to plan and implement energy projects. This organizational model, in which a broader governmental organization offers support to smaller ones, builds capacity for energy programs within municipalities by providing resources that have focus and expertise.

An alternative to this model is a partnership between local governments and a regional agency such as the Association of Bay Area Governments (ABAG). A key feature of this or any partnership is a central point of contact in both the local agency and in the regional organization.

3.2.1.3 Develop an inventory of municipal buildings and energy use

A first step to develop an energy efficiency plan is to inventory all municipal buildings. Next is to collect energy use and cost information per building for at least the past three years. Energy use and cost data should be normalized to square footage, occupancy, and weather conditions, and grouped according to function (because, for example, data centers have much higher energy usage than normal office space) so that accurate comparisons can be made.

USEPA's ENERGY STAR Portfolio Manager software is an example of a free benchmarking tool for this purpose. Communities can work with utility representatives to obtain the data needed to populate such a tool. Three years of data should reveal trends and allow comparisons among buildings and over time. The result should be a prioritized list of potential projects that accounts for other considerations such as planned and scheduled retrofits and other upgrades and renovations.

3.2.1.4 Conduct energy audits of all buildings

Energy efficiency audits establish a baseline or benchmark for all other energy efficiency program activities, including prioritizing buildings for upgrade, analyzing projects, preparing budgets, and approving projects.

Audits also help identify specific potential measures. For example, certain buildings may need lighting retrofits while others may need HVAC maintenance. Audits can also help target first-order costs.

3.2.1.5 Prepare investment grade audits

The ABAG survey found that investment grade audits are usually needed to make detailed project decisions. Investment grade audits provide sufficient detail on the efficiency equipment and actions, costs and financial benefits (e.g., specific return on investment data) to make a sound investment decision on the project. These audits also allow a community to know what needs to be done when negotiating with an implementation contractor without being dependent on the contractor's own numbers and assumptions. One interviewee noted that the "the level of detail [in the investment grade audit] was a major benefit to move the projects into the approval pipeline." For example, the Sonoma County Board of Supervisors used the results of an investment grade audit to negotiate a contract with a contractor or energy service company (ESCO).

3.2.1.6 Set goals and prioritize energy actions

Setting specific, measurable goals is critical. For example, the City of Palm Desert has set goals to achieve net zero energy use in its own buildings by 2020 and to have 50% of the power for city buildings come from renewable resources by 2012.

Our survey found that ten of the 12 communities (83%) prioritize energy projects among buildings and then for each building. Whether the projects are part of a formal municipal energy action plan or a spreadsheet ranking (return on investment, energy savings per dollar, or other criteria), a prioritization process is critical to the success of municipal building energy use reduction.

3.2.1.7 Use a formal budgeting process

Eleven of the 16 communities (69%) studied in the ABAG survey approve efficiency projects as part of a formal budgeting process, either through the Capital Improvement Program (CIP), the annual budget, or both. However, five approve them on a project-by-project basis as the opportunities arise. The goal should be a dedicated on-going budget tied to an energy efficiency plan. We expect more use of formal budgeting as communities develop their programs' capacity.

Whether energy project approval is through the CIP or an annual budget depends on a jurisdiction's budget process and rules. CIP programs in larger jurisdictions tend to be for expensive infrastructure and renovation projects. Every retrofit, upgrade, and renovation should be carefully examined to include all cost-effective energy efficiency systems and measures. Efficiency may be added for as little as one or two percent of the overall cost.

Efficiency projects should be prioritized and presented to the governing body in a way that gives them fair consideration compared to other types of community investments. Also, by organizing the projects as a group in a budget proposal, communities find it easier to plan and secure financing.

3.2.1.8 Use a pre-approval process

Five jurisdictions in the ABAG survey have a formal pre-approval process for efficiency projects. Pre-approved projects do not have to be presented to the governing body. The dollar limit of pre-approved projects varies from $10,000 to $60,000, with larger jurisdictions usually having the higher limits. This allows flexibility to implement projects when most advantageous (e.g., good bids, better financing rates, optimal opportunities for replacement), rather than having to bundle them and wait for later approval.

Nine of the 16 communities in the ABAG study require approval for projects on a case-by-case basis, with the occasional exception of small projects, such as changing out lights or thermostats, which may be part of a maintenance budget. The requirement for case-by-case approvals can stall a promising energy efficiency project.

Alameda County Transit District

The Alameda County Transit District looks for a simple payback of seven and a half years for energy efficiency investments. This is not a policy but rather a rule of thumb. These projects are considered as a way to cut costs and for the district to become more efficient. Greening of facilities and improving overall comfort and quality are also factors that are considered.

Energy efficiency metrics may be used to prioritize deferred maintenance projects, since such projects often provide an opportunity to upgrade energy efficiency. Either pre-approval or traditional approval requires an understanding of what is involved in the maintenance projects, and how they relate to overall budgeting and ESCO contracting plans. ESCOs that finance the projects are repaid with cash flow from energy cost savings. In some cases, ESCO-type mechanisms may be an effective way to deal with deferred maintenance as well, and in other cases, communities may benefit from finding other means of financing, such as funding the projects with an annual budget allocation, from a energy grant, or financing projects themselves with or without a third party's help. See Chapter 6, Finance, for more specifics on local government self-financing strategies, including revolving funds.

3.2.1.9 Treat efficiency projects as investments, not expenditures

Many energy efficiency projects have a positive cash flow. As a result, managers and government boards often look at them favorably, particularly if they can be financed and the investment recovered within a reasonable payback period.

Based on the 16 communities in the ABAG survey, most communities stated that their governing boards evaluated efficiency projects fairly, in an organized and deliberate manner. In most cases, the board approved projects when there was a reasonable financial payback period (e.g., two to four years) or solid return on investment (ROI) compared to other expenditures.

The ABAG interviewees stated that projects were financed using different funding sources, depending on what was preferred or available at the time. The sources include funds from the city or county budget, loans from an internal fund, a bond fund, a bank, or an ESCO. This is discussed further in Chapter 6, Finance. Communities have learned about funding and financing options because they have had to overcome the fiscal hardships that many local jurisdictions face.

3.2.1.10   Use and leverage management processes and systems

Perhaps the most important tool that effective local government programs have is an overall strategic process for managing energy. This process includes benchmarking energy use, centralized utility billing and payment, and regular reporting to management on energy use and cost savings.

Benchmarking – Comparing the efficiency of a building to similar buildings, or to its own past performance, can be done with monthly billing and occupancy data. Low-performing buildings can be analyzed to determine what energy performance improvements are needed. Eighty percent of the communities we interviewed benchmark their energy performance against indicators such as kW per square foot. More information on benchmarking can be found in Appendix B.

Centralized cost and management systems – Jurisdictions are moving towards centralized cost and management systems. Six of the 12 jurisdictions we interviewed regularly monitor and track cost and performance using a spreadsheet or a centralized computerized energy information management system. As discussed in Section 3.2.2, some agencies are further leveraging this activity to require the monitoring, testing, and retro-commissioning of building systems to ensure that the buildings are performing as intended.

Five communities have centralized utility billing and two more are planning to do so. Without centralized billing and payment management, jurisdictions struggle to control energy costs. In some cases, line item budgets are established and enforced. Sonoma County staff said that the utility management software they use makes a big difference in their efforts to understand and control costs and consumption.

Advanced energy information management systems – Energy-efficient operation and maintenance of buildings can be enhanced by advanced energy information systems that monitor and control energy use in real time through software, controllers, and sensors. Three of the twelve communities we interviewed use a central electronic energy management system, and another three jurisdictions have immediate plans to install one (See the discussion on Los Angeles County in the box below). One of the benefits of the systems is the ability to measure consumption over time. Such systems can be used to identify and flag maintenance problems, which reduces labor costs because maintenance personnel know in advance what they are going to encounter. Such systems can help to manage energy consumption more actively on a daily basis. "Plug" loads (e.g. data centers) can be monitored and building managers can work with users to control them.

**Los Angeles County's
Enterprise Energy Management Information System (EEMIS)**

The Los Angeles County's Enterprise Energy Management Information System (EEMIS), which was installed in 2002, allows county energy managers to monitor building performance. The EEMIS gathers real time metered data from the largest facilities including data from air conditioning, lighting, and other building loads. It allows for real-time analysis and intelligent control over energy usage, as well as comprehensive data warehousing, reporting, and monitoring, and allows the County to analyze current and projected future energy use. During retro-commissioning, sensors and controls are connected to the EEMIS, which is programmed to provide alarms when equipment is failing, or being operated outside of design parameters. This allows centralized management staff to identify problems early and to take corrective action, and for facility engineers to maintain comfort and efficiency.

The County's EEMIS allows complex engineering data to be complied and presented in formats that people from all organizations can understand. It also allows the County's Internal Services Department to make sound financial cases for investments in government buildings based on payback.

There are simplified energy management systems that track energy consumption in municipal facilities. ENERGY STAR Portfolio Manager is a free, web-based energy and water management tool that supports single or multi-building portfolios. A few communities are beginning to use ENERGY STAR Portfolio Manager, including the City of Irvine.

The accuracy and efficiency of energy management systems can be improved by obtaining data from utilities in electronic format. Manually entering billing information is time-consuming and prone to errors. Some jurisdictions, including Pleasanton, plan to request electronic data from their utility. Currently, some communities are having difficulty using ENERGY STAR Portfolio Manager because utilities have not been set up to provide electronic usage and billing data on a regular basis. Localities and utilities have been working to develop the needed electronic data systems.

Reporting to management – Energy performance data should be collected from the management system and reported to local government managers to highlight achievements, cost savings, and areas for improvement. In businesses and communities, lack of adequate management systems can inhibit continuous energy efficiency improvement. Projects may be cancelled or neglected if data are not available to justify continuing projects to decision-makers. Reporting is an opportunity to educate decision-makers on needs, and to leverage successful energy projects to justify new efficiency investments.

Role of building engineer – Building engineers must understand and endorse the changes that are implemented in the buildings they manage. One of the main reasons that retro-commissioning fails or that savings deteriorate rapidly is that building engineers revert to "hand" mode and change many of the adjustments and improvements made during the retro-commissioning process. If there is no formal energy management system or benchmarks for the building, these changes go

unnoticed. Several jurisdictions, including the County of Los Angeles, now train building engineers on how to operate individual buildings most efficiently.

3.2.1.11   Take advantage of turnkey services

Communities that are constrained by the availability of personnel and technical know-how find that comprehensive turnkey services produce better outcomes.

The ABAG study concluded that energy managers prefer programs that manage the entire energy project lifecycle: complete energy audits, identify and pre-qualify contractors, submit the rebate applications, and manage the implementation process. The interviewees stated that identifying partners who can assist with completing the paperwork (a time-intensive process) and identifying the contractors elevates the likelihood of project success. The ability to go to one person or firm with all questions is also a significant benefit of a turnkey program.

One interviewee said that he participated in the ABAG audit program specifically to access ABAG's pre-screened pool of contractors. The bid process in his jurisdiction is often cumbersome and allocating the time or resources to find contractors can be a show-stopper. In some cases, having a pre-screened pool of contractors made it possible for local governments to sole-source work or reduce the time and effort to approve contractors. This approach has succeeded elsewhere. For example, the State of Illinois offers a program to local governments providing an ESCO project bidding and selection process and technical oversight service that has produced high rates of project implementation.

3.2.2 Specific Actions and Measures Being Pursued by Local Governments

3.2.2.1 Require advanced building standards for municipal buildings

An increasingly common best practice is mandating that new government building projects achieve advanced levels of efficiency. Ten of the 12 communities we interviewed require some level of LEED (Leadership in Energy and Environmental Design) certification, or call for achieving a threshold LEED score for their own new buildings. Many of these communities leverage their own commitment to LEED to persuade developers to build to LEED or a similar standard.

3.2.2.2 Retro-commission buildings

Retro-commissioning involves restoring a building's operating parameters to the original design intent. Over the years, the operation of a building can change as equipment ages and usage evolves in response to changes in function, renovations, and occupancy. These changes can have a negative cumulative effect on building performance. The retro-commissioning process also provides the opportunity to revise

"design" conditions to reflect newer use and occupancy requirements and to apply improvements in available technology. Three of the 12 jurisdictions we interviewed have a retro-commissioning program and four more are planning one.

Research, including the results from Los Angeles' County's monitoring based retro-commissioning program between 2006 and 2008, has proven that retro-commissioning can be a cost-effective means to improve energy efficiency in commercial buildings.

3.2.2.3 Launch or expand wastewater and water energy efficiency programs

Five of the communities we interviewed have energy efficiency projects in water and wastewater systems and another three are planning such projects. Since water and wastewater production, treatment, and distribution is about 7.7% of all electrical use in the state, reducing electricity in these activities is critically important to meet statewide energy efficiency goals.

Each major utility in California has programs that specifically target water and wastewater; local government should take full advantage of these programs to plan for and implement improvements because water-energy projects are costly and time-consuming to plan, approve, contract, and execute,

Eleven of the 12 communities we studied have applied for ARRA funds. Many will or have received funds, and possibly additional funding through competitive grants. With these funds, local governments have an opportunity to invest in water-related projects.

3.2.2.4 Establish and ensure compliance with an energy efficiency purchasing policy

Implementing an energy efficiency purchasing policy can significantly reduce energy consumption from computers, appliances, and other devices (See the discussion on the City of San Diego in the box below). Five of the 12 communities that participated in the interviews have such a policy and another four plan to adopt one. Purchasing policies that provide efficiency guidelines can be adopted on their own or as part of a larger environmentally-preferable or green purchasing program that includes actions such as buying recycled materials and clean fuel vehicles.

The Institute for Supply Management, a leading professional organization for supply and purchasing professionals, has many references and training opportunities on energy-efficient and environmental purchasing. The purchasing manager can very effectively support a locality's energy team by influencing purchases before they are made.

Marin County has a purchasing resource available to small communities that otherwise do not have this purchasing expertise. Similar efforts could be operated through councils of government or other regional organizations.

City of San Diego

The City of San Diego's Environmentally Preferable Purchasing Policy requires new goods and services purchased for the city to be energy efficient within cost constraints. Both the Sustainability Department and the Purchasing Department review purchasing plans and orders. The Purchasing Department shares data with individual operating departments on specific types of energy efficient equipment that is preferred. When major purchases are made (e.g., HVAC systems), there are a number of qualified City staff that can assess the purchase in accordance with the policy.

A recent Federal Energy Management Program (FEMP) study of U.S. government agencies found that only 15% of eligible purchases met energy efficient guidelines. The FEMP study confirms our experience that a purchasing policy must be complemented with mechanisms to ensure compliance, such as business rules that require a review and sign off of compliance with the policy, and/or periodic program audits.

3.2.3   Challenges Faced by Local Governments

3.2.3.1 Financial constraints are a common reason for failure to implement energy efficiency projects in government buildings.

In the ABAG interviews, the energy managers were asked what prevented the implementation of energy efficiency projects in government buildings. The number one reason was funding, as shown in Table 3-1. Seven of the 12 interviewees said internal budget constraints represented a significant obstacle.

Table 3-1: Barriers to Implementing Energy Efficiency Projects

Top Reasons for Failing to Implement Efficiency in Government Buildings	Number of Respondents Identifying *
Funding or budget constraints	7
Staffing constraints	5
Timing (of rebates and program cycle)	2
Lack of information	1
Historical limitations	1

Notes: * of 12 total respondents
Source: Association of Bay Area Governments (ABAG) 2006-2008 energy audit program participants that were conducted by the CPUC for the Non-Resource Impact Evaluation published in January 2010 (known as ABAG Study).

There was no consistent response from the interviewees regarding how to better fund projects. Several people said that programs should simply provide more funding, or fund 100% of some projects rather than only a portion. Others noted that higher utility energy efficiency incentives are helpful, as they shorten the payback period, which increases the chances that a project will be approved by local government decision-makers. In

fact, when asked how influential incentives for government building energy programs were in the decision to install the energy efficiency projects, on a scale of one to ten (with ten extremely influential) nearly all respondents rated the influence a nine or ten.

Others suggested the need for information about other funding sources. These respondents would like to understand what other utility and non-utility incentives are available to subsidize the cost of the projects, including Energy Efficiency and Conservation Block Grant Funds. Refer to Chapter 6, Finance for more information on alternative utility and non-utility funding sources and approaches.

3.2.3.2 Staffing constraints and lack of expertise and experience necessary to inform and influence key decision-makers

The next most common constraint was staffing, followed by the need for more information or technical knowledge. According to several interviewees, budget reductions equate to staffing reductions, which creates a "tug of war" between staff time and budget. Staff reductions can also mean more work per staff, which can reduce the amount of time and effort that can be dedicated to energy projects. Additionally, deciding which projects to implement is difficult without greater technical knowledge. Some interviewees identified educated and trained consultants as helpful resources in this situation. One respondent to the ABAG survey noted, "Everyone's project loads are heavy and only the mission critical projects get completed. Consultants provided by ABAG's program really helped lay the ground work."

3.2.3.3 Not being able to pursue projects because of an inability to complete them within the three-year CPUC program cycle

Two people interviewed in the ABAG survey mentioned the three-year CPUC public goods charge (PGC) program cycle inhibits energy efficiency. One respondent stated that managing rebates based on a calendar year schedule, compared with a local government's traditional fiscal year budgeting schedule, further complicates the process. These energy managers noted difficultly completing the audit process, seeking approval, and completing projects in time to get credit within the three-year program cycle. This issue was also raised in the process evaluations of the 2006-2008 local government partnership programs.

3-3. RECOMMENDATIONS

The key goals and implementing actions recommended in this chapter focus on providing incentives and assistance for local governments to develop and implement an energy plan for their own buildings. Addressing local government buildings effectively will help lay the foundation for energy action within local governments and help them develop the experience and credibility to be a steward for energy action within communities that localities serve. Appendix A presents detailed recommendations.

GB.1: Develop Local Government Buildings Energy Action Plans.
GB.2: Conduct Energy Benchmarking.
GB.3: Regional Cooperation.
GB.4: Conduct Building Monitoring.
GB.5: Community Innovation Center.
GB.6: Implement Reporting.
GB.7: Implement Best Practices.

4. CODE COMPLIANCE AND ENERGY EFFICIENCY

Code *compliance* typically refers to the plan checks and building inspections that are conducted for new construction and retrofit projects including their energy efficiency aspects. Code *enforcement* refers to regulatory or legal action to compel an applicant or permit holder to correct a violation. In this chapter, the term *code compliance* includes both meanings unless otherwise noted.

To understand the capacity to assure compliance with energy codes within a locality, one should understand the context within the overall code compliance organization. Typically, code compliance activities are funded by user fees rather than tax revenues. Fee levels are based on the services to be provided, the estimated cost to provide them, and the estimated amount of construction. The services to be provided are driven by code requirements (such as Title 24), but the community has some discretion in how these services are applied.

The placement of the building code compliance function within local government organizations can influence how codes are managed and enforced. In some instances, code compliance is in a standalone department. In others, building inspectors may be in a division of the Planning and Development Department, in the Building Department or they may reside in the Public Works Department or some other department. The location of the plan check and/or inspection functions in the organization influences the plan reviewers and/or building inspectors' susceptibility to political pressures and the amount of their clout. For instance, inspectors within planning and development departments may be more subject to pressure to approve projects.

Communities also differ with respect to the use of internal or external code compliance staff. In many communities, compliance personnel are staff of local government. In other communities, code compliance is partially contracted to private firms, including the job of chief code compliance officer or building inspector. Localities that contract services tend to have low or variable demand for permitting and inspection services. Communities that tend to have the need for specialized permitting, such as communities in warmer or cooler climates with many HVAC systems or with large industrial bases, may contract for specialized energy code management services.

There are two main activities related to code compliance: plan review and physical inspection. (A third activity is enforcement, such as levying penalties and fines or denying permits.) For small communities with a staff of two or three people, plan review and inspection may be a shared or split responsibility. The staff may be "jack-of-all-trades," and there may not be dedicated expertise for specialties such as commercial electrical inspections. In such cases where specialists are needed, the community may hire a consultant. Larger jurisdictions tend to dedicate separate staff to plan review and to inspection. There also tends to be greater levels of specialization. The ideal is to have specialized staff.

When construction activities are increasing rapidly, communities may have problems meeting the demand for inspections and, therefore, may reduce inspection requirements and budgets per site leading to lower compliance rates for energy and other aspects of the building code. In periods when activity is declining, communities may find that they have more resources than they need. In such cases, a compliance organization may use the opportunity to train staff or revise procedures, such as to prepare staff for new versions of Title 24. If the over-resource is extensive, they are more likely to lay off or transfer personnel.

4-1. ENFORCING CODE COMPLIANCE IMPROVES ENERGY EFFICIENCY

California's Title 24 has many statewide standards that promote energy efficiency; however, these standards are not meaningful without compliance and enforcement. There is a concern that enforcement of Title 24 standards may not be uniform across the state because compliance is local, and the skills and level of resources available may not be consistent between jurisdictions. Improving compliance with local and state energy codes is a cornerstone of a strong, capable, self-sustaining local government energy program. The 2008 California Long Term Energy Efficiency Strategic Plan seeks to dramatically improve local compliance with Title 24, including HVAC permitting and inspection requirements.

Using a systematic approach that emphasizes standardized tools and processes, continuous improvement, training, and communication among all parties—plan inspectors, site inspectors, developers, contractors, and utilities—is key to improved energy code compliance. Inadequate staffing is the top barrier to higher compliance rates.

4-2. HOW CODE COMPLIANCE AFFECTS LOCAL GOVERNMENT ENERGY EFFICIENCY EFFORTS

4.2.1 How Community Characteristics Influence Code Compliance

4.2.1.1 *The size and maturity of the community influence code compliance activity*

Typically, larger communities have more compliance capacity than smaller communities (e.g., they have inspectors specializing in particular systems, such as electrical or HVAC). However, capacity also has to do with the community's maturity and economic development.

Newer communities with a surplus of available land, are economically attractive for development, or are located on major highways may have much higher levels of new residential, commercial, and industrial construction. Communities that are trying to grow quickly are often short-staffed. They may also de-emphasize code compliance because they want to encourage developers to build. Older communities where construction is

limited to infill, rebuilding, and/or redevelopment or renovation of existing property tends to pay more attention to code compliance.

These different conditions will impact the capacity of a locality to assure compliance with energy codes.

4.2.2   Best Practices that Lead to Higher Compliance with Title 24

4.2.2.1 Show commitment to a high level of code compliance

The eight jurisdictions that we interviewed on code compliance issues for this study have been recognized by their peers or by builders as placing a high priority on code compliance and doing "a good job." Doing a good job means being technically correct, consistent, and responsive to inquiries and concerns, as well as being fair and open-minded in the resolution of issues. One building official stated that his department is considered tough, which he takes as a compliment.

4.2.2.2 Develop checklists and other tools to make the codes more user-friendly and implementable

Nearly all interviewees translate the codes and standards into more detailed checklists to provide practical guidance for plan checking and field inspection, and for contractors. This assures that requirements are being met consistently. In some instances, the code is directly translated to checklists. In other instances, a great deal of time is spent to establish more detailed requirements. Two of our interviewees reported that their office makes substantial efforts in this area. Participating in the construction of the checklists also educates plan reviewers and inspectors.

4.2.2.3 Communicate requirements early and often with developer, builder, and contractor communities

Nearly all people we interviewed emphasized the importance of communication with the developer/builder/contractor community. A couple of the interviewees discussed the need to ensure that developers, builders, and contractors understand the detailed requirements before they arrive with plans in hand. When they understand what is required before they start, the entire process works more smoothly.

The building department managers and others we interviewed said that the building community needs access to the building staff in order to understand what is in the detailed checklists. Some of the departments hold annual workshops and other educational events to ensure that the builder and developer communities are knowledgeable.

4.2.2.4 Integrate checklists into the right place in the process

It is important to integrate the checklist detail into the right places in the code compliance process. Having to check for something in a suboptimal place in the process can degrade efficiency, increase project and inspection costs, and detract from the credibility of compliance personnel and the process itself. An example of a suboptimal check process is failing to identify a specific piece of equipment that may be required for compliance, only to identify it upon final inspection.

4.2.2.5 Get maximum value from the plan review step of the process

The managers we interviewed emphasized the importance of the plan review step. One element is to assure that the design of the building meets efficiency standards. A second is to understand how the elements of the proposed design interact with each other to meet Title 24 requirements. This requires knowledge of such things as the specifications for insulation and other structural elements, for equipment, and for their proper installation. For example, it is important to know whether a pump is installed in the right location and if it is pumping in the correct direction. If these attributes are identified in the plan review step, they become points for inspection and verification in the field.

Also important is identifying equipment specifications and requirements in the plan review and tracking them so that they are checked in the field at the right time. Whether a building passes code with prescriptive measures or on a performance basis, the inspector must determine whether installed equipment is as efficient as the planned equipment. Field substitutions sometimes degrade the performance of the building. There are many reasons why contractors may substitute equipment. Particular equipment may be discontinued, the exact model may not be in stock at time of installation, and there may be cheaper models that perform as well or better. The inspector needs either the model numbers or the specifications to determine if the equipment in the field is consistent with the plan.

4.2.2.6 Use a high quality tracking system

Historically, code compliance has been paper-based. Over the last 15 years, software has made inroads in certain jurisdictions. Two of the interviewees said their departments use automated permit tracking systems. A check of these systems suggests that they provide substantial integration and workflow assistance for plan reviewers and inspectors.

With the increasing detail needed to assess energy efficiency, software-based management systems are becoming important for efficiency, the quality of compliance and, if needed, enforcement. The inspection points in the plan review need to be identified and the requirements provided to the inspector at the optimal time in the process. Current systems have this functionality, but additional automation, including the use of handheld entry devices, would assist in streamlining and increasing

accuracy. For example, tear sheet specifications for a piece of substituted equipment could be initiated from the site, updated, and approved if they meet the requirement.

The full potential for software-based tools in code compliance has yet to be realized, but software for building inspectors represents an opportunity to streamline the process and to increase consistency.

4.2.2.7 *Invest in training and educating building department staff and builders and developers, particularly specialized hands-on training and mentoring*

All interviewees discussed the importance of training on codes and code compliance. In fact, this was the most discussed topic in this set of interviews. There are numerous sources of training, including professional associations, builders, trade associations, and private firms. In California, investor-owned utilities (IOU) support training for local government officials at professional and trade association events and through their training centers. The IOUs recently revamped their training offerings to make them more specific to their audiences (e.g., contractors or plan checkers).

The building officials and managers we interviewed emphasized that sending staff to training is costly and takes people from their jobs. Approval to attend training is almost always an issue. When the need for code compliance work temporarily decreases, training is often cut back. Ironically, in these lulls, inspection personnel might actually have time to take training.

Interviewees cited the importance of classroom training to assist in interpreting and applying the codes. This includes increasing the understanding of the technical underpinnings of the codes and developing the technical competence to observe and evaluate. The codes do not necessarily lend themselves to easy application without technical understanding.

Some of the interviewees commented on the importance of on-site training. Viewing an actual installation or installation process are important ways in which inspectors and contractor personnel learn. Reading the code, seeing pictures of installations, and discussing the pictures do not necessarily create full understanding.

Some interviewees mentioned the importance of mentoring, in which staff may tutor each other. Mentoring can be a very effective way of transferring knowledge and skills. It also builds consistency in the application of plan reviews and inspections.

Because inspection content is so broad, most people we interviewed indicated that individuals were not in a position to master all of the content. They mentioned the need for specialized training—for example, on commercial HVAC installations.

There was universal agreement that the ideal would be to have specialists in all key content areas. But in most jurisdictions, there is insufficient staff to do so. Thus, in small jurisdictions (less than 150,000 residents), there is a heavier burden on learning broad content with fewer inspectors than in larger jurisdictions. Building department managers

with fewer staff pointed out that they want to cross-train so that more than one plan reviewer or more than one inspector is available with specialized expertise.

While the use of contract inspectors for specialized areas is not uncommon, the people we interviewed expressed concern about the quality of contract inspections, raised flags about the diligence of contractor staff, and for the most part, implied that they used contract staff only when the overall burden became too high or when certain specializations were required.

4.2.2.8 Facilitate continuous learning within the jurisdiction

While codes and compliance issues can be learned in a formal classroom setting, some of our interviewees suggested that this was really an individual study task. They commented how important it is for plan reviewers and inspectors to read, understand, and frequently review code requirements. Group training is also helpful to introduce code changes or additions.

None of our interviewees spoke specifically to the issue of being a learning organization, but that was how most building department managers described their organizations. Learning organizations are entities in which leadership encourages individual and collective problem identification and solving, rewards those initiatives (perhaps through peer recognition), and encourages members of the organization to share their knowledge with each other. Regardless of structure, almost any organization can be a learning organization.

Most of the interviewees stressed that sharing the "what" and "how" of compliance is important for good communication between managers, policy makers, and local politicians. Such communication increases understanding of the compliance function, generates support for quality programs, and may help to reduce interference in code compliance from policy makers and others.

4.2.2.9 Implement a quality control program

There is always some checking of a plan reviewer's or inspector's compliance work, both routinely and when the work is challenged. In one of the jurisdictions, a supervisor inspects the work of each staff member twice every six months. While routine inspections ensure that the work is being carried out properly, inspection challenges and quality control inspections can also be used to identify the need for refresher training.

Having champions for quality inspection within the organization can be important as well. One organization used a grant from a utility to free an individual to work part-time on projects such as developing checklists, exploring automation, and investigating other ways of streamlining work and improving performance. This has helped improve organizational processes.

Codes must be applied consistently across projects within a jurisdiction. Consistency means applying the same standard in the same situation regardless of the personnel. This is why training, checklists, and tracking systems are so important. Consistent application of codes and standards results in credibility for the code compliance functions. It means that developers, architects, engineers, contractors, and subcontractors are more likely to know what is expected and to follow the codes and standards from the beginning of a project. It reduces call-backs and the playing of inspectors or plan reviewers against each other.

Developers, architects, engineers, contractors, and subcontractors work in many jurisdictions, unlike code compliance officials. One interviewee mentioned that builders or contractors complain that certain elements of the code are not enforced in a neighboring jurisdiction, making it more difficult to enforce standards. Differences in compliance make it difficult for contractors to compete on a level playing field and to know what standard they need to meet. Differences in compliance can lead to a preference for building in one jurisdiction over another or building just over the city or county line. Regional or multi-jurisdictional collaboration can lead to more uniformity in code enforcement and standards (see Chapter 5, Advanced Codes), minimizing these kinds of problems.

4.2.2.10   *Encourage peer-to-peer exchanges across jurisdictions*

There is a fair amount of peer-to-peer exchange among building officials and builders. This cooperation may be in the form of occasional get-togethers to exchange information, checklists, and other materials that are used in compliance, or agreements relating to how certain areas of the code will be enforced, or regional training events. Our interviews suggest that this is important and should be encouraged. The California Association of Building Officials (CALBO), building trade associations, utilities, regional councils of government, and the regional councils formed by Build it Green all play roles in creating forums for peer-to-peer networking and exchanges.

4.2.3 Key Barriers to Higher Levels of Code Compliance

4.2.3.1 *Energy code compliance is one of many skill sets that must compete with other disciplines for attention and resources*

There is a temptation within the energy community to think of building codes as solely energy codes. But energy efficiency is just one of many—others include safety, health, and accessibility—and it may not be perceived by all as the most important one. This implies that code compliance:

- Requires a broad range of both theoretical and practical knowledge;

- Calls for continuous updating of knowledge;

- Requires understanding of the interactions among the different codes;

- Requires practical skills ranging from plan review and checking to understanding construction techniques, sophisticated heating cooling and electrical systems, solar systems, etc.; and

- Calls for developing strong communications skills.

4.2.3.2 The compliance chain is complex, and each link represents a potential for compromised energy savings if not executed properly

When jurisdictions work on changes to their codes, thought must be given to the implementation strategy in light of existing permit processes. Forms must be developed that clearly communicate code requirements and tie directly to the design drawings themselves.

When new codes are rolled out, utilities play an important role in setting the groundwork for successful compliance through their incentive programs and ongoing education and training activities.

Implementation largely rests in Building Departments. In order to be successful, the energy code implementation method must conform to a department's overall process. Third-party rating, verification, and commissioning agents also have an important role because sometimes localities contract with inspectors or plan checkers from these organizations. Finally, the building industry itself must recognize and embrace code changes in their design and construction practices.

4.2.3.3 Inadequate staffing

Inadequate staffing is the top barrier to higher compliance rates. Limited staff resources often lead to cutting corners. While additional training, more effective checklists, process tools, and software will help make better use of inspection time, sheer lack of resources will continue to hamper inspection performance and compliance rates.

Higher compliance rates are also hampered because staff members are often unable to develop the specialized skills to ensure compliance with the code. Most of the organizations we interviewed do not have resources to hire specialized inspectors, such as electrical inspectors, or for specific aspects of the inspection (e.g., building envelope, HVAC). Communities with few staff may be required to take a "jack-of-all-trades" approach, leading to a high risk that things will be missed during inspections, especially when on-site time is limited.

4.2.3.4 Lack of training

Lack of training was identified as a barrier. Building awareness, providing technical training, and peer/on-the-job training are all important. Training program gaps in these

areas results in a lack of proficiency to properly conduct the inspections. This is a resource and funding issue.

4.2.3.5 Insufficient processes and procedures to integrate code requirements into plans and inspections

Our interviews and studies, including the Statewide Code Compliance Study,[11] found that processes that require detailed plans and drawings lead to higher compliance rates. This is for two primary reasons: (1) the process forces the applicants to specify how they will comply with the code, and (2) the inspectors have the information from the permit application specifications to more easily check for required elements and equipment while on-site.

Having easy-to-use tools in the field, such as customized checklists, is a key need. Inspectors often only have 45 to 60 minutes onsite, or less. Limited budgets and overworked inspectors due to consolidations or layoffs are exacerbating this problem.

4-3. RECOMMENDATIONS

Our recommendations establish goals and implementing actions to increase the rate of code compliance. Policies, incentives, funding and technical assistance are recommended to advance this goal. Just as improving energy efficiency of local government building is a cornerstone of a strong, capable, self-sustaining energy program, improving compliance with local and state energy codes is a cornerstone that will lead to community wide energy efficiency improvements. Appendix A presents detailed recommendations.

CC.1: Improve Code Compliance Rate.
CC.2: Establish Regional Centers for Code Compliance and New Codes and Standards: These centers should be multi-purpose, offering support for planning, government buildings, energy technology, codes, and finance.
CC.3: Provide Grant Opportunities for Specialized Training and Staff Resources to Support training of Local Code Enforcement Staff.
CC.4: Establish State Code Inspector Certification Program.

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[11] Statewide Codes and Standards Market Adoption and Noncompliance Rates, Final Report CPUC Program No. 1134-04, SCE 0224.01, Quantec. Inc.

5. REDUCING ENERGY USE IN BUILDINGS THROUGH ADVANCED ENERGY CODES

It is estimated that buildings use 38% of all energy in the U.S. and produce a similar percentage of U.S. GHG emissions[12]. Improving the energy efficiency of new construction is a lynchpin among the strategies to meet climate and energy goals. Research suggests that building energy use must be reduced by 60% by 2050 to achieve the country's overall GHG reduction goal of 80%[13]. Local governments can reduce building energy use by advancing the energy efficiency aspects of building and construction codes.

5-1. HOW ADVANCED LOCAL CODES DRIVE ENERGY EFFICIENCY TECHNOLOGY

Building and construction codes establish performance thresholds so that actors in the market cannot gain an unfair advantage by using less efficient equipment or inferior materials, designs, or construction practices. Codes are focused on performance; they are agnostic about how the performance is achieved[14]. If the performance threshold imposed by a code is too low, it can actually impede efficiency by allowing inefficient (and usually less expensive) technology to displace more efficient but usually more expensive technology. As such, energy codes must advance, as must the technologies to meet them.

The development of advanced energy codes and technologies is an iterative process that involves the California Energy Commission (CEC), utilities, manufacturers, trade associations, and other stakeholders. At present, at least 36 cities in California have adopted green building ordinances, many of which include energy codes that exceed the minimum standards of Title 24 of the State Building Code[15]. These advanced codes will increase the energy performance of both new construction and certain major renovations. Local governments consider these ordinances as a necessary and practical requirement for meeting advanced energy reduction and greenhouse gas emissions goals.

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[12] ICLEI
[13] SAIC estimate.
[14] Some codes focus on a performance standard for a specific piece of machinery, such as an air conditioning condenser or, while other codes may be based on the performance of a system, such as a whole building.
[15] Green Building Ordinances in California. State of California Department of Justice, Office of the Attorney General. (2009) and Local Ordinances Exceeding the 2008 Building Energy Efficiency Standards. California Energy Commission (2010).

5-2. VARIOUS PROGRAMS SUPPORT ADVANCED CODE DEVELOPMENT

California has the most advanced energy codes in the U.S.—Title 24—and is furthering its leadership in energy efficiency with a new generation of codes. The California Building Standards Commission has adopted the first-in-the-nation mandatory Green Building Standards Code, CALGREEN[16]. The CALGREEN code, which takes effect on January 1, 2011, requires all new buildings in the state to meet minimum thresholds for indoor and outdoor water efficiency and construction waste reduction. It mandates the inspection of energy systems on non-residential buildings (e.g., air conditioning and heating), and requires measures to improve indoor air quality. The code includes voluntary measures for energy including exceeding Title 24 by 15% (Tier 1) or 30% (Tier 2). CALGREEN's mandatory provisions, many of which are already part of the statewide building code, will be inspected and verified by local and state building departments.

Typically, state and local codes are built upon the codes established by voluntary national standards bodies. For example, the American Society of Heating Refrigeration and Air Conditioning Engineers (ASHRAE) has standards such as ASHRAE 90.1[17] for heating-ventilation-air conditioning (HVAC). The International Code Council[18] develops model standards for use by state and local governments, which typically adopt them by reference and then modify them to meet local conditions.

In California, local governments can advance their own codes with approval of the CEC. These advanced codes may be based on other standards and rating systems that specifically address energy efficiency, such as LEED (Leadership in Energy and Environmental Design), BIG (Build It Green), and HERS (the Home Energy Rating System).

LEED is a point-based rating system with a checklist of green building requirements to promote and/or require varying degrees of energy efficiency as well as other sustainability measures related to indoor environmental quality and water efficiency. LEED has developed several rating systems for different construction markets, including nonresidential buildings, commercial building cores and shells, commercial interiors, schools, health care facilities, and retail spaces. In January 2008, LEED released a new system for homes, LEED-H. More recently, the LEED for the Neighborhood Development Rating System was released, but registration for new projects is not anticipated until later in 2010.

BIG, a point-based system similar to LEED, applies to residential development and includes separate guidelines for single-family and multifamily buildings. A building must attain at least 50 GreenPoints to be certified as GreenPoint Rated.

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[16] California Code of Regulations, Title 24, Part 11
[17] American Society of Heating Refrigeration and Air Conditioning Engineers, ASHRAE 90.1
[18] International Code Council (ICC) is at http://www.iccsafe.org

Under both the LEED and BIG systems, a building accumulates points by meeting certain criteria, and higher point levels equate to higher standards. HERS, by contrast, is a performance-based system requiring a demonstration that the building performs at some percentage above a certain threshold, which may be a standard defined by USEPA or a code such as Title 24.

The California Building Industry Association's Building Industry Institute has developed the California Green Builder program to help builders and communities introduce and verify green building practices. The California Green Builder program combines prescriptive measures with a performance-based verification system. Similar to HERS, the California Green Builder program does not use points, but requires specific practices and third-party verification of a building's actual performance. It is designed to ensure that buildings exceed state energy efficiency requirements by at least 15%, while verifying practices such as duct sealing and construction waste management.

ENERGY STAR is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy. The program was introduced in 1992 as a voluntary labeling program for energy-efficient products, but has expanded to include energy rating systems for buildings. ENERGY STAR-rated homes are at least 15% more efficient than homes built to the 2004 International Residential Code, and include additional energy-saving features that typically make them 20–30% more efficient than standard homes. ENERGY STAR commercial buildings or manufacturing plants must score in the top 25% (75 points or more) in the National Energy Performance Rating System test developed by the EPA.

HOME STAR is a proposed federal program that would provide direct incentives to American homeowners who invest in improving the energy efficiency of their homes. The basic structure of the HOME STAR program was developed by an ad hoc committee of private sector advisors and venture capitalists at a meeting of the President's Economic Recovery Advisory Board in November 2009, and the plan is now under consideration by the White House. Residents would receive rebates up to a maximum of 50% of the project costs for residential energy upgrades such as air sealing, insulation, new light bulbs, and new appliances.

5-3. HOW CALIFORNIA COMMUNITIES ARE APPROACHING ADVANCED ENERGY CODES

A number of cities in California are working hard to adopt advanced codes to meet an increasing number of expectations. These expectations can be from their own community, neighboring communities, or the state or federal government. This is further complicated by the different sizes of cities, the economy (e.g., the real estate slump), and budget cuts which may limit a community's capacity to learn about the various green building programs and tools available to it. Several counties in California have developed their own green building ordinances in an attempt to create regional consistency and a level playing field, including San Diego, San Mateo, Marin, and Alameda.

In addition, regional organizations are beginning to consider new approaches to green building ordinances. For example, Build It Green has formed a Public Agency Council that has over 100 participating public agencies in Northern California which meet quarterly to share information and create consistent green building standards.

There are five important take-aways from this discussion.

- Local governments can and do adopt advanced building codes.

- These codes are above and beyond the statewide codes.

- The approaches taken by communities are drawn from a broad base of approaches to advanced building practices.

- Advanced local codes provide a test bed for the political, economic, and technological practicality of approaches.

- Developing advanced codes requires considerable expertise and resources that are lacking in many communities.

5.3.1   Lessons from Communities Adopting Energy Codes That Exceed Title 24

5.3.1.1 Green building programs that exceed Title 24 exist in eight cities and towns in California

Eight cities and towns have CEC approval to incorporate additional energy efficiency standards (such as third-party point-based rating systems) that are more stringent than those of Title 24. Fifteen other communities have received approval to incorporate standards more stringent than the 2005 statewide standards. The Attorney General's office[19] indicates that 36 of the state's 480 cities have green building ordinances.[20]

5.3.1.2 Many programs are in jurisdictions with a strong history of code compliance and enforcement

Most green building programs have been developed since 2006. Programs are more likely to be found in jurisdictions with a strong building department with a history of code compliance and enforcement. Communities that place a priority on enforcing building standards appear to have a higher level of appreciation for the value of the built environment.

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[19] Green Building Ordinances in California. State of California Department of Justice, Office of the Attorney General. (2009).
[20] Local Ordinances Exceeding the 2008 Building Energy Efficiency Standards. California Energy Commission (2010).

5.3.1.3 Often, advanced energy standards are part of a wider green building code or ordinance

Advanced energy standards are typically part of a broader "green building" effort within a community that includes measures such as water conservation, waste reduction, and recycling. This appears to be due to the widespread use of LEED and BIG point systems.

5.3.1.4 Incorporating LEED and BIG point systems leads to more rapid adoption of green building ordinances

Rather than require LEED or BIG certification, which is an expensive process, communities achieve similar performance by incorporating LEED and BIG criteria and point systems into their codes. LEED criteria address a broad range of elements, with energy only one of them. Depending on the point level for LEED or BIG achieved, a building may not have energy measures that substantially exceed Title 24. For buildings that achieve higher LEED or BIG points, more advanced energy efficiency measures are usually incorporated. The ease of use of LEED and BIG criteria has accelerated the adoption of green building ordinances. The interviewees indicated that implementation of ordinances based on these systems has been smooth, with no significant problems.

5.3.1.5 Implementing advanced codes for existing buildings is more problematic than for new buildings

Only a handful of communities (Davis, Berkeley, San Francisco, and Santa Monica) have mandatory programs to improve energy use in existing buildings. While the opportunities for improvement in existing buildings usually far exceed those in new buildings, existing-building ordinances encounter political opposition from local interests, such as realtors. They also require inspection resources that are costly and not readily available. One first step in addressing existing building energy use is to inventory or characterize existing buildings' energy use, which Portland, Oregon has proposed as a mandatory requirement (See the discussion on Portland Oregon in the box below).

Portland, Oregon

By January 1, 2011, it is proposed that owners of existing commercial buildings in Portland must report third party verified building characteristics including energy use during the previous 12 months, water consumption levels, and indoor air quality through EPA's Energy Star Portfolio Manager. Building performance measures are to be updated at least once every three years. Also, disclosures must identify whether the building qualifies for the City of Portland's Clean River Rewards incentive for storm water management. Buildings may receive a financial incentive calculated in terms of dollars per square foot once every three years for obtaining a LEED-EB rating or an Energy Star score of 75 or greater.

5.3.2   Community Motives for Adopting Advanced Energy Codes

5.3.2.1 Proactive developers help drive advanced codes

In most of the communities we studied, the local government adopted advanced codes as a result of proactive developers and city officials experimenting with advanced buildings and subdivisions (See the discussion on Austin, Texas in the box below). Proactive developers realize the value of efficiency and renewable energy, and that these features will sell if the costs are built into the price of the building rather than offered as a series of add-ons.

Local officials work to make the development attractive and appealing to buyers. This process has created "proof points" that the codes were cost-effective, leading to support from the development community and city officials. Three of the 11 interviewees discussed how developers had already implemented advanced energy efficiency requirements on a voluntary basis and, in some cases, had approached the city about formalizing such requirements for the entire locality. Part of the developers' motivation is to apply a common code to all developments, leveling the playing field for all applicants. This code-based approach is more efficient than ad hoc efforts among building departments and developers, because it can build from a common standard to make the buildings as appealing as possible.

Austin, Texas

The City of Austin adopted a goal of requiring all new homes to be zero-energy capable homes by 2015. Zero-energy capable homes will be 65 percent more efficient than standard dwellings, and are constructed to allow the addition of on-site generation. Austin's goal is to increase building standards gradually between 2010 and 2015. Austin has gotten some pushback from local developers but has been careful to develop its ordinance using a community consultative process that allows for input from all sectors.

In Portland, Oregon, a key driver for implementing high performance building requirements is economic development. The City sees green building requirements as an opportunity to demonstrate excellence and become a hub for sustainable building and energy efficiency, which it believes will translate to new jobs. The strategy enjoys public and political support, and past and incoming mayors have embraced the program.

> **Portland Green Building Program**
>
> The Portland Green Building Program represents a partnership of six development-related City bureaus and other local organizations. Through its programs and services, the Green Building Program focuses on organization and policy development, demonstration projects, technical assistance, educational outreach and access to financial incentives. For residents of the Portland Metro Area, the Green Building Program acts as a centralized resource for people interested in incorporating green building practices in residential and commercial development.[21]

5.3.2.2　Demonstrating leadership on green issues and branding the community as interested in sustainability

The desire to be seen as leaders on green and climate issues, to attract green development and jobs, and to brand the community as interested in greening and sustainability are key drivers. Local communities compete against and provide positive "peer pressure" for each other. Three of 11 interviewees mentioned that the actions of other communities motivated them to develop more stringent green building ordinances in their own communities. Sharing ideas and lessons learned has been a key part of implementing advanced energy codes in many communities. Communities are proud of their efforts, and the interviewees indicated a strong willingness to share information.

5.3.2.3　Green building programs can be an important step in a community's energy/climate program

While the first and most important step in developing an energy/climate program is to implement an energy management plan for their own buildings (as presented in Chapter 3), a logical next step is to apply the experience toward developing a green building code. A green building code is often a precursor to a climate action, energy, or sustainability program. Four of the 11 interviewees identified addressing climate change and greenhouse gas emissions as the primary driver for adopting advanced energy codes. The stated objectives for the codes were to promote green development, and to reduce energy use and greenhouse gases. It was also reported that the codes and their implementation were designed to minimize any additional burden on staff or applicant resources.

5.3.2.4　Green building programs can be an internal education and awareness-raising mechanism

Five of the 11 interviewees said that their community uses green building programs as an internal education and awareness-raising mechanism. For example, San Leandro identified a key need for staff to be better educated on sustainability and energy

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[21] City of Portland Bureau of Planning and Sustainability - Green Building Program website.

efficiency. The training of their staff in the LEED and BIG rating systems was a key factor to build internal capacity and overall environmental awareness.

5.3.3 Processes Communities Use to Develop and Adopt Advanced Energy Codes

5.3.3.1 Drawing upon building department staff, developers, other cities, and third-party programs

When integrating advanced requirements in their building codes, communities often look to their peers (See the discussion on Santa Rosa, California in the box below). They often learn by communicating with communities that have existing codes or by using resources provided by industry groups. Three of the 11 managers we interviewed were quite pointed about talking and working with peer communities as an important part of adopting these codes.

Santa Rosa

Santa Rosa reported that using Build It Green allowed for minimal staff resources and involvement. It was also easily incorporated into the permit process. The City Council formed a green building task force with 18 members from environmental programs, developers, licensed professionals, and interested individuals. The Taskforce met on a monthly basis and identified costs associated with "going green." After several months, the taskforce recommended a 50-point Build it Green program and a 20-point LEED program. The city worked directly with Build it Green to integrate its program with the city's own building permitting process.

5.3.3.2 Local political leadership on environmental issues is a prerequisite to passing a green building program

In all communities that were interviewed, local political leadership and a commitment to clean energy, climate protection, community greening, or sustainability (often as part of the U.S. Conference of Mayor's Climate Protection Agreement[22], or ICLEI membership) were prerequisites to launching and eventually passing a green building program. Establishing advanced energy codes usually began with a high level commitment from a mayor or city council to develop a specific ordinance. All eleven communities are ICLEI members and most have signed the Mayor's Climate Protection Agreement.

5.3.3.3 Developing advanced codes with existing funds

Only a couple of the communities interviewed had used grants to support the development of their advanced codes. The interviewees said that existing staff were

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[22] U.S. Conference of Mayors' Climate Protection Agreement

able to fit this work into their jobs by leveraging resources to minimize the time they spend, including drawing on standards used for actual green projects, modifying examples from surrounding communities, and applying templates and tools from organizations such as BIG and LEED, to draft codes.

5.3.3.4 Active stakeholder engagement

Some communities use a taskforce of key players from the city, development community, and environmental groups to develop an ordinance. For example, eight of the 11 respondents discussed active stakeholder involvement as part of their process to develop advanced green building codes.

5.3.3.5 Providing cost comparisons of additional measures to educate local officials, developers and other stakeholders on the costs of building to new codes

Some communities provide cost comparisons between conventional buildings and green buildings as part of their outreach program to builders. For example, the City of Portland's High Performance Green Building Policy factsheet states "A 2006 Oregon Department of Transportation analysis of a new LEED Gold office building concludes that increased productivity and reduced energy bills would save taxpayers $61 million over 20 years compared to a conventional building."[23]

5.3.3.6 Setting advanced energy requirements for their own buildings to demonstrate leadership

Ten of the 11 communities we interviewed require LEED or a similar standard for their own new buildings. The other community is planning this requirement. Most of the people we interviewed stressed the importance of local government building efficient and building green.

5.3.4 Common Standards and Approaches for Implementing Advanced Codes

Table 5-1 provides an overview of the most common approaches to advanced building codes we identified during our research.

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[23] Portland Office of Sustainable Development High Performance Green Building Policy – Factsheet. (2008).

Table 5-1: Most Common Approaches to Advanced Building Codes

System	Building Type	Pros	Cons
Criterion-Based Systems			
Title 24, Part 6 (2010 Version)	Commercial and Residential New Construction and Modifications	▪ State mandate; no adoption process. Intent is to bring energy requirements to the entire state. ▪ Training and experts readily available ▪ Standards well known ▪ Reasonable cost ▪ Program designed to be supported by building inspectors with limited training ▪ Uniform code will encourage conformity and may have lower implementation costs	Prescriptive nature may result in lost efficiency opportunities compared to performance standards Highly detailed nature makes learning and operationalizing the code in the building permit and the building inspection processes difficult.
LEED– New Construction (Silver, Gold, Platinum Levels)	Commercial	▪ Easy Adoption ▪ Training and experts/certifiers readily available ▪ Standards and performance well known ▪ Reasonable cost short of full certification	Exceeding Title 24 may not occur depending on prerequisite selected and energy measures implemented. Prescriptive nature may result in lost efficiency opportunities. High cost for actual certification.
LEED – Existing Buildings (Silver, Gold, Platinum Levels)	Commercial	▪ Same as above	Same as above
LEED – Homes (Silver, Gold, Platinum Levels)	Residential	▪ Same as above	Same as above
Build it Green	Residential	▪ Exceeding Title 24 ▪ Easy Adoption ▪ Training and experts/certifiers readily available ▪ Standards and performance well known ▪ Reasonable cost short of full certification	Prescriptive nature may result in lost efficiency opportunities. High cost of certification.

System	Building Type	Pros	Cons
CALGREEN	New Commercial and Residential Buildings	▪ State mandate; no adoption process. Intent is to bring green building standards to the entire state. ▪ Training and experts readily available ▪ Standards and performance well known ▪ Reasonable cost ▪ Program designed to be supported by building inspectors with limited training ▪ Uniform code will encourage conformity and may have lower implementation costs	Exceeding Title 24 not mandated but it is encouraged. Prescriptive nature may result in lost efficiency opportunities.
Performance-Based Systems	Commercial, Residential	▪ Higher building energy performance ▪ Performance tests to verify efficiency.	More complex and time consuming adoption process (requires modeling of building performance). Training and experts/certifiers less readily available More costly to implement because of whole building analysis required and specialized inspectors
Custom Combine LEED, BIG, Performance Systems to develop programs that satisfy the interests and needs within a community.	Commercial, Residential	▪ Meet the individual interests and needs of a community	Higher adoption cycles and costs More challenging to administer, measure, and evaluate.

5.3.4.1 *Local approaches often combine LEED, BIG, and performance-based standards to achieve their goals*

Almost all communities we studied create programs and codes based directly on third-party programs, such as LEED (commercial buildings) and BIG (residential buildings) but do not actually adopt these standards or require certification. Eight of the 11 local governments either have or are considering using LEED or BIG. Three of these eight also use performance-based codes requiring residential buildings to be built to a higher standard than Title 24, primarily using the HERS system to verify performance.

Table 5-2 provides a list of California local governments and their existing or proposed LEED or Build It Green requirements for private developments.

Communities often do not require official LEED or BIG certification, to avoid that additional cost. Rather, they require that buildings meet standards based on the LEED- or BIG-based point system. Meeting permit requirements is determined by whether the building will meet or exceed a particular point threshold (e.g., 50 GreenPoints for a multi-family building). The specific features of the permit are verified in the final building inspection.

5.3.4.2 More communities are experimenting with their own unique approaches to put their own stamp on their programs

Five of the 11 cities define their own green building standards without the use of a criteria-based third-party system. Three of these also used criteria-based systems in addition to performance-based codes. West Hollywood is a good example of a community that has put its own stamp on its program (See the discussion on West Hollywood in the box below.)

West Hollywood

West Hollywood adopted a mandatory green building ordinance on October 1, 2007, which includes requirements for drought-tolerant landscaping, low-flow plumbing fixtures, and energy efficient appliances. The ordinance applies to all new residential and commercial projects as well as remodels and tenant improvements, and uses a point system (minimum 60 points) developed by the City, with incentives for projects that achieve "exemplary" status (above 90 points). The requirements are structured as a point system to:

- Allow for maximum flexibility

- To reflect West Hollywood's unique opportunities and constraints

  - Emphasize locally-available materials

  - Encourage green elements to be incorporated early into project design

  - Provide flexibility to alter green elements as the project evolves

Developers can achieve a LEED Certified rating for the building instead of using the points system. The standards proposed by the ordinance were incorporated into the Zoning Ordinance so that all new projects would be required to meet the standards. The City has created a Green Building Manual to help guide users through the process. In addition, a Green Building Resource Center provides a sampling of green building materials, practices, and additional information.

Table 5-2: Examples of Commercial and Residential Green Building Requirements Used by Local Governments in California

City	Commercial Buildings	Residential Buildings
Albany	LEED Gold if over 5000 sq. ft.	50 GreenPoints for single-family
Berkeley	Demonstrate compliance with Commercial Energy Conservation Ordinance (CECO) prior to sale or transfer or if renovations total more than $100,000	Demonstrate compliance with Residential Energy Conservation Ordinance (RECO) prior to sale or transfer or if renovations total more than $50,000
Brisbane	LEED Silver if over 10,000 sq. ft.	50 GreenPoints for multifamily
Cotati	60 GreenPoints	60 GreenPoints
Chula Vista		50 GreenPoints
Livermore	LEED Certified Equivalent	50 GreenPoints
Long Beach	LEED Certified if over 50,000 sq.ft.	LEED Certified if over 50 units
Los Altos		50 GreenPoints
Los Angeles	Buildings over 50,000 sq. ft. must meet the intent of LEED at the Certified level	Buildings over 50,000 sq. ft. or 50 units or more, and six stories or less must meet the intent of LEED at the Certified level
Novato	NA	50 GreenPoints
Palo Alto	LEED Silver if over 5,000 sq.ft.	70 GreenPoints if over 1,250 sq. ft.
Pasadena	LEED Certified if over 25,000 sq. ft.; LEED Silver if over 50,000 sq. ft.	LEED Certified if over four stories
Pleasanton	LEED Certified if over 20,000 sq. ft.	NA
Rohnert Park	LEED Silver	90 GreenPoints

City	Commercial Buildings	Residential Buildings
San Francisco	New buildings 5,000-25,000 sq. ft. • No LEED rating level • Variety of LEED credits required (gradually increases from 2009-2012) New building and alterations >25,000 sq. ft. • 2008 LEED Certified • 2009 LEED Silver • 2012 LEED Gold	Small Residential • 2010: Minimum 50 GreenPoints to get building permit • 2012: Minimum 75 GreenPoints to get building permit Mid-Size Residential • Same as above but 75 points required in 2011 High-Rise Residential • 2008: LEED Certified or 50 GreenPoints • 2010: LEED Silver or 75 GreenPoints
San Rafael	LEED Certified; LEED Silver if over 30,000 sq. ft.	60 GreenPoints
San Mateo (Co.)	LEED Silver if over 3,000 sq. ft.	50 GreenPoints or LEED Certified
Santa Cruz	NA	10 GreenPoints + 1.5 GreenPoints for every 100 sq. ft. over 350 sq. ft.
Santa Monica	7 LEED Points (all LEED prerequisites) - this is 33 points below the lowest LEED rating (LEED Certified)	NA
Santa Rosa	All new buildings and renovations over 1,000 sq. ft. or more than 50% of existing building area - 20 LEED Points	All new buildings - 50 GreenPoints
Sebastopol	40 LEED Points	50 GreenPoints
Hayward	LEED Silver if renovations/building valued over $3,000,000	50 GreenPoints if more than 20 units
Windsor	20 LEED Points (20 points below LEED Certified)	50 GreenPoints
West Hollywood	60 City Points (based on own point system Or LEED Certified)	60 City Points or LEED Certified

5.3.4.3 Adopting LEED or BIG in their entirety as local standards is resisted because of the costs to certify

Due to cost and time requirements, the LEED system is typically used as a checklist rather than formal rating system to determine the LEED level (e.g., certified, bronze, silver, etc.). Using LEED's levels imposes more requirements on local governments to change their permitting processes and building ordinances to match LEED, which they are reluctant to do. Further, few cities require an applicant to register their LEED building with the U.S. Green Building Council.

5.3.4.4 California Green Builder and ENERGY STAR represent alternatives to LEED and BIG

The California Green Builder program is an alternative to the LEED and GreenPoint Rated approaches to help builders and communities introduce and verify green building practices (See the discussion on Las Vegas in the box below). So far, no California city has required developers to use the Green Builder Program. However, San Bernardino, Riverside, and Cathedral City have passed ordinances that provide incentives for developers who use the system. ENERGY STAR, which provides an energy rating system for buildings, is another alternative. While ENERGY STAR programs tend to be voluntary, communities are starting to require that new homes be built to ENERGY STAR standards.

Las Vegas' ENERGY STAR Program

Many utilities and communities now have Energy Star building programs. The Las Vegas Nevada Energy Star Residential program reports that 65 percent of new residential construction in its community meets Energy Star standards. It has also been reported that some newly constructed homes in Las Vegas are achieving HERS ratings of 50, meaning they are at 50 percent of the energy use of standard construction.

5.3.4.5 Performance-based systems are used less frequently because of the training and costs

Cities and counties with significant in-house energy expertise often implement performance-based systems. For instance, all of the cities listed in Table 5-3 use performance-based codes as part of their green building program, and are among the most advanced in energy efficiency expertise in the state. Montgomery County, Maryland bypassed the problem of in-house expertise by requiring builders to pay for a certified HERS rater to provide a certificate of inspection that says that a residence meets the energy code before an occupancy permit is granted.

Chula Vista is designing its advanced energy code to comply with the new State green building code, CALGREEN (See the discussion on Chula Vista in the box below). Its approach provides a good example of how a community can effectively customize a

program drawing from different criteria- and performance-based approaches. The City's code seeks to exceed Title 24 requirements by at least 15%. The City does not discourage applicants from using LEED or Build it Green to help them reach the standard. The State requirements were directly applied to develop the City's own checklist of green building and energy requirements.

Table 5-3: Examples of Jurisdictions with Performance-Based Codes[24]

City	Energy Efficiency Requirement Beyond Title 24
Cotati	15% for residential buildings
Los Altos	15% for non-residential buildings
Los Altos Hills	15% for residential buildings
Palm Desert	10% for residential buildings; 15% if over 4,000 sq. ft.
Rohnert Park	10-15% for residential buildings based on size
San Rafael	All homes larger than 3,500 sq. ft. must develop and implement a plan to exceed Title 24 standards
Santa Barbara	20% for residential buildings
Santa Monica	10% above code for non-residential and residential either based on a prescriptive approach or a performance approach based on an evaluation of the Time Dependent Value (TDV) energy for the project
Santa Rosa	15% for residential buildings

Chula Vista

Chula Vista's proposed Green Building Measure would mandate new and retrofit residential and non-residential projects to incorporate the requirements of the Housing and Community Development's (HCD) version of the 2010 California Green Building Standards Code (CGBSC). The CGBSC also has a provision for addressing indoor water conservation measures, which would be implemented in 2011. The Chula Vista Standards would incorporate both the 2010 and 2011 specifications for an earlier adoption than scheduled by the State. In addition, it would require projects to achieve the energy efficiency equivalent of exceeding the current California Energy Code (Title 24) by at least 15% using a HERS inspection and rating procedure.

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[24] Green Building Ordinances in California. State of California Department of Justice, Office of the Attorney General. (2009).

5.3.4.6 Most jurisdictions adopt mandatory programs to simplify adoption and implementation

Whether local green building programs are voluntary or mandatory varies across the State. Some local governments require these standards to be met, while others are implementing them as voluntary, tied to incentives (See the discussion on Portland, Oregon in the box below). Eight of the 11 interviewees stated that they made their green building programs mandatory because having a uniform requirement is easier to implement and they had the needed political support.

Incentives are not commonly used as an alternative to mandatory requirements, but may be used more as communities develop their programs.

Only two of the jurisdictions we interviewed use permitting fee-based incentives or other incentives to encourage green building as an alternative to mandatory requirements. Several cities have incentives, according to a California Attorney General survey. When asked about such incentives, all the interviewees said that they prefer either mandatory or completely voluntary programs because their policy is not to reduce fees or permit review times for different types of developments, or they simply decided to make the program mandatory.

We found no studies on the effectiveness concerning "feebates," or a waiver or reduction of fees due to a voluntary action. However, incentives may play a more significant role in future programs as the cities promote even higher standards. Mandatory programs with higher standards may be difficult to move forward politically. Communities are likely to experiment with voluntary programs and incentives to encourage innovation to gather proof points and political support.

Portland, Oregon

Unlike the California cities interviewed, Portland, a city that has long worked with its developers on green buildings, has no plans for a mandatory program. It has proposed ordinances to be effective in 2010 for new residential and commercial construction that involve rewards for high performance buildings.

For developments with higher than code performance, or built to LEED certification, the fee would be waived or an incentive, from $1.75 to $17.50 per square foot, would be offered based on achieving specific atmospheric and energy credits in LEED. Residences that are 30 percent above the 2007 Oregon Code will receive a one-time carbon fee reward. Residences at 15 percent above will be exempt from any fees. Residences under 15 percent will be required to pay a one-time carbon fee. The proposed ordinances for new commercial buildings are similar except that the proposed levels are 45 percent and 30 percent. Buildings must be inspected for compliance by a third party. Buildings that are certified against other standards, LEED or Energy Star, may be approved as part of this program. The ordinances establish a carbon fund into which and from which the feebates are to be paid.

5.3.5 How Communities are Implementing Advanced Codes

5.3.5.1 Communities have integrated green building programs into existing permit approval and inspection processes without great difficulty

The building permit process is the mechanism for energy efficiency to be incorporated into the approval conditions for new developments or for alterations to existing buildings. This gives cities the ability to deny permits any developments that do not comply with the advanced requirements.

5.3.5.2 Most communities are able to use internal staff for the permitting process

The new requirements for advanced codes were easily integrated into desktop application review processes, including the plan check process of reviewing the project description and drawings against the building standards. Permit counter staff have been able to incorporate green building checklists into this process. Third-party software has been modified for permit application reviews to address the green building requirements. Santa Rosa's Building Department Director described the department's process for developing a green building program as easy to incorporate into the City's existing permit process. None of the interviewees reported raising permit application fees to process green building applications.

5.3.5.3 Many communities use outside inspectors, which points to the lack of resources to train all local inspection staff in green building compliance

Most of the 11 communities we interviewed use outside resources to conduct inspections either routinely or occasionally. Alternatively, an agency may require the applicant to pay for a LEED or BIG rater to tackle the entire process with sign-off by the city's permit officers (See the discussion on Rohnert Park, California in the box below). Having the option of using outside inspectors helps building department managers to more cost-effectively ensure compliance with the code. Because all of the cities interviewed are considered leaders, the fact that many of them are using outside inspectors points to the lack of available inspectors and/or the resources to train local inspectors in green building inspection.

> **Rohnert Park**
>
> Rohnert Park's commercial green building ordinance requires LEED Silver (50-59 Points) to get a building permit.
>
> The City will certify the project alongside a LEED-accredited architect, rather than going to USGBC for accreditation. This reduces cost and effort for the applicant and City.
>
> Build It Green's system is used for residential compliance. The owner must hire a Green Point Rated certifier to fill out a checklist, which is then sent to the City, which assesses the plan using a Green Point Rated consultant.
>
> As both the LEED and BIG Programs were designed with trained inspectors and certifiers, the City has not had to train its own staff to understand the green requirements.

5.3.5.4 Because most advanced codes have been in effect only since 2006, there are very limited energy performance results

Despite almost 40 communities passing green building ordinances since 2006, construction schedules and the real-estate slump have limited the opportunity to assess the results of the programs.

5.3.6 What are the Impediments to Advanced Energy Codes

5.3.6.1 Time and resources, especially with additional budget cut-backs that communities face

Local governments' ability to develop and adopt advanced codes depends on the availability of resources to develop proof points and to advocate for incorporating new standards, technologies, and processes.

By extracting checklist questions from other systems and incorporating them into local codes, governments have been able to rapidly gain expertise and establish credibility with their stakeholders, particularly developers. However, it takes resources and funding to develop the expertise, manage the stakeholder process, and develop the permit review and inspection processes for the code.

5.3.6.2 Building the capacity among architects, developers, and builders is needed

Some communities have developers who are interested in piloting green building standards as a template for citywide standards. However, several local officials said that other developers oppose the new standards or that a great deal of time and energy is needed to obtain their support.

5.3.6.3 *Obtaining CEC approval to adopt advanced codes takes precious resources and time*

Local governments are required to apply to the CEC for approval of energy standards. They must document that their proposed standards will save more energy and be more cost-effective than the State building standards. Currently, eight local governments have been approved to implement advanced codes beyond the 2008 standards, and 15 communities above the 2005 standards[25]. These approval processes add time and effort to the implementation of new ordinances and advanced codes[26], though we did not quantify the resource required or duration of the delay, nor did we determine to what extent this is a barrier.

In 2010, the California IOUs developed feasibility studies to be used in the CEC approval process for each of California's 16 climate zones. Local governments wishing to adopt local energy codes that go 15% beyond the 2008 Title 24 energy requirement can use these studies rather than hiring a contractor to complete the study.

5-3. RECOMMENDATIONS

We recommend goals and actions that will lead to zero net energy building performance for all new buildings by 2020 and all buildings by 2030.   We can not overstate the importance of communities having strong code compliance programs that achieve a high level of compliance with existing energy codes before new codes are adopted. Appendix A presents the detailed recommendations.

AC.1: Achieve Zero Net Energy for Buildings.
AC.2: Advance Residential Zero Net Energy Codes.
AC.3: Provide Support and Incentives for Education and Training on Advanced Codes and Green Building in coordination with Regional Centers (see Code Compliance Recommendations).
AC.4: Support Existing Regional Code Development Organizational Structures.
AC.5: Reduce Time for State Approvals of Local Energy Codes that Exceed Title 24 to a Goal of Six Months.

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[25] This study did not confirm that codes approved to exceed the 2005 standard continue to exceed the 2008 standard.
[26] Local Ordinances Exceeding the 2008 Building Energy Efficiency Standards. California Energy Commission (2010).

6. FINANCING ENERGY EFFICIENCY PROJECTS

Financing is the most common barrier to advancing energy efficiency in existing buildings, even though the payback on efficiency projects is very good—typically two to five years. One interviewee commented that government organizations feel that energy efficiency projects should be paid for up front, even though those same organizations regularly finance similarly large non-energy projects over long periods of time, and would otherwise be attracted to the high return on investment (ROI) that efficiency projects offer.

Since analyzing the sociology and psychology of financing is not within the scope of our research, we limit our discussion to some of the financing mechanisms available, and exclude the conditions for their adoption and use[27]. However, we recognize that without addressing the fundamental behavioral and market issues associated with financing, it is likely that governments will continue to struggle with how to encourage large-dollar investment in efficiency and renewable projects whether for government buildings or for financing residential or small commercial improvements. For municipal facilities, and also residences and small businesses, energy efficiency and renewable project expenditures may be second in size only to renovating the buildings themselves or, in the case of households, to the expense of the residence and vehicles. Thus, it makes sense to spread the cost of such improvements over the lifetime of the improvements or at least the payback period of the investment. Finding a way to do so will make retrofitting existing buildings more economically feasible.

6-1. FINANCING LOCAL GOVERNMENT BUILDINGS

Local governments commonly confront financing challenges when developing energy efficiency projects for their own buildings. Difficulties include the availability of affordable financing, limits on credit, and potential impacts on credit ratings. To address these issues, local governments are experimenting with self financing, including revolving funds, and third-party financing, such as through performance contracting. They are also aggressively seeking Federal and State stimulus funding.

Local governments located in Investor Owned Utility service territories in California can borrow funds at zero interest from the utilities through ratepayer funded on bill financing programs. In Decision 09-09-047 in September of 2009, the CPUC required that all four Investor Owned Utilities offer on bill financing to government agencies as well as commercial customers as part of the Decision approving the utilities' administration of $3 billion in ratepayer funded energy efficiency programs between 2010 and December of 2012. These loans are to help local governments overcome the initial cost of making energy efficiency improvements to their buildings. Monthly payments made through the

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[27] Specifically, this study does not discuss the performance contracting models as this approach has been in place for many years and is broadly available, but often has restrictions that limit it as a universal application.

utility bill are revenue neutral, or are equal to or less than the energy bill would have been without the retrofit.

In addition, the California Energy Commission offers low interest loans for feasibility studies and installation of energy saving measures. The loans are available to schools, hospitals, and local government.

6.1.1   Funding Sources that Exist Other than General Funds

6.1.1.1 Revolving funds represent a promising model for financing energy projects for local government buildings

Revolving loan funds have been used by state and local governments to finance energy efficiency for some time. The earliest programs may have been the revolving school loan funds in Iowa and Missouri in the 1980s. Eleven states and several cities currently have revolving loan programs for schools.

Revolving funds provide either a zero-interest or low-interest loan. In zero-interest loans, capital is applied to projects that produce a stream of dollar savings from energy bills and energy rebates. The savings stream is then used to replenish the fund. With low-interest loans, capital is repaid over time (typically two to five years). Zero-interest loans are also paid back over a similar time frame.

The cash flow from the loans helps fund other projects and resources for staff, and reduces the use of general funds. Most jurisdictions set up the programs so that after a few years, the recurring savings from the energy bills are put into the jurisdiction's general fund or a departmental budget. Jurisdictions often estimate recurring savings as the difference on a per square foot basis between the pre-efficiency project amount of the energy bills and the post-efficiency project amount.

The example of a revolving fund with the longest history that we found is in Ann Arbor, Michigan[28]. Ann Arbor's fund has performed well since it was established in 1997. In 2000, Ann Arbor was chosen as a national finalist for the U.S. Conference of Mayors' "City Livability Awards Program" for its energy efficiency program, which includes the revolving fund. It also appears that in California the cities of San Jose, Long Beach and Visalia, as well as San Bernardino County, are pursing these types of efforts.

Key advantages of revolving loan funds are that the borrowing costs and interest rates can be kept relatively low. An energy office or other department within the local government facilitates the loan (often administered through the locality's finance or accounting office) directly to specific approved projects and incurs few administrative costs. Because the interest charged on the funds adds relatively little to project costs, combining as many efficiency measures as possible will improve the return on investment because they can be managed as a group. This approach also can lead to

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[28] Ann Arbor Energy Plan: A summary, Ann Arbor Michigan, 1998

addressing the retrofit needs of buildings more comprehensively (e.g., not just low hanging fruit but longer term improvements are possible).

If the seed monies from the loan funds are internal, they are less likely to be treated as borrowings by credit rating agencies. This is the case with several of the examples researched in this chapter, where the jurisdiction's governing body loaned the energy office an amount of money (e.g. $100,000). Ninety percent of the funds are loaned to departments implementing energy projects and 10% or so is used for administering the program. After the projects are implemented, the value of the energy savings, and any rebate amounts obtained by qualifying projects, are returned to the fund to repay the initial loan and then re-used to finance other projects.

Ann Arbor, Michigan, San Jose, California, and Nashua, New Hampshire have set up revolving funds not only to finance energy projects, but also to create a financially self-sustaining Energy Office (see the discussion on the City of San Jose, California in the box below).

City of San Jose

The City of San Jose set up a revolving fund in 2007 with $150,000 in general fund seed money that allows the Energy Office to retain the first two years of energy bill savings (plus rebate amounts) for capital for future projects and to pay for a staff person. At present, that investment has generated $450,000 for the fund.

The City of Nashua, New Hampshire established a revolving fund in 2007. Nashua's fund obtains monies from local banks to supplement its own funds. Its Energy Office provides loans to departments at 5% interest, which must be paid back within five years. After the payback period, the departments retain all of the savings over the life of the equipment. In cases where the department's budget is reduced because of the lower energy costs, the savings would accrue to the jurisdiction as a whole. To supplement this financing, Nashua is working with three regional banks. The City's Energy Office is also trying to integrate energy retrofits into larger new construction and renovation projects as part of the Capital Improvement Program (CIP) process.

The preceding examples of revolving loan funds are from situations in which energy costs are usually managed at a departmental level. However, in Los Angeles County, energy use is centrally managed, including efficiency and maintenance. In that environment, one could imagine treating energy management as a cost center, monitoring and managing energy use and costs. This may allow for the creation of internally generated investment capital by allowing the cost center to bill "customers" for their energy use at pre-project usage levels and retaining the value of the savings. The retained value would be used to pay off the project and also build the fund. When the project is paid off, the customer's bill would be decreased. Properly structured, it might be possible for the cost center to incentivize customers to look for energy saving

opportunities and be rewarded by sharing in the value of the savings, similar to a performance contract arrangement.

6.1.1.2 Jurisdictions take advantage of opportunities to leverage non-local funding to increase the monies available to revolving funds.

Energy Efficiency and Conservation Block Grants (EECBG), CEC State Energy Programs (SEP), and other funds can be leveraged for local energy efficiency projects. The City of San Jose expects to generate $2 million for its revolving fund over four years from the administration of an $8.8 million EECBG. Under the SEP, local communities can apply for funding for their own buildings.[29] The SEP specifies that the funds must be used to seed a revolving loan fund to begin or augment outside funding. The SEP also specifies that revenue savings from efficiency measures adopted in state facilities must be used to fund ongoing cost-effective efficiency measures.

6.1.1.3 Funds from utility franchise taxes and utility-based programs are being used to sustain energy offices/functions

In some cases, communities are using utility franchise taxes and other utility-based funds such as energy, solid waste, and wastewater fees to sustain energy operations/ functions. Montgomery County, Maryland has used a very small part of an energy excise tax to supplement its energy program funding. Chula Vista's Energy and Climate Office has used solid waste franchise fees to help support its programs.

Stopwaste.org, a regional agency representing 17 cities and sanitary districts in the San Francisco Bay Area's East Bay, is using solid waste funds to support energy, climate, and sustainability services. *Stopwaste.org* uses a small part of its funding from regional landfills to support green building program training and implementation such as LEED, and to support energy efficiency technical assistance. *Stopwaste.org* justifies using part of its funds for these programs because its mission includes promoting sustainability and programs that address climate challenges.

6.1.2 Challenges in Scaling-Up Financing for Energy Improvements

6.1.2.1 There is a lack of knowledge of alternatives for financing energy projects for local government buildings

Very few communities have developed a sustainable financing model for their own buildings or for their overall energy program. Many communities that are part of the CPUC's local government partnership (LGP) program or that secure funds from other

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[29] The CEC is implementing stimulus related funding programs for local governments in Municipal Financing Program ("AB 811-type programs"), the Municipal and Commercial Building Targeted Measure Retrofit Program, and the Low Interest Energy Efficiency Financing Program. Under the Low Interest Energy Efficiency Financing Program, the CEC will provide 1-3% interest loans to energy efficiency and renewable energy retrofits to cities, counties, special districts, public schools and colleges, public hospitals and public care institutions. Applications were due to the CEC by November 30, 2009.

sources such as the EECBG program have an opportunity to develop self-sustaining energy operations. However, even many of the communities that have received LGP funds are still struggling with how to fund their energy management staff.

One integrated approach to funding energy management, including staff, is to set up revolving funds, drawing from energy, solid waste, water, wastewater and grant and stimulus funds to service energy and other resource program needs (e.g., green building programs). This chapter provides examples of cities, such as San Jose, that are beginning to do this. Specialized fuel and utility taxes may also help communities address funding and financial barriers.

A key need is for local governments to set up and implement what this report calls the SEE – Sustainable Energy Enterprise - concept.   Many local governments have an opportunity to develop a financially-self sustaining energy enterprise/office by planning their enterprises in a way that create a stream of cash from technical and financial services to internal and external users. Fee generating services may include providing energy efficiency services internally, such as the County of Los Angeles does, or program assistance to cities in a County (e.g., Marin County), administering a revolving fund, a energy finance district (EFD) (see below), or providing other services that generate fees and cash flow to sustain a local energy office.

6.1.2.2 Communities face difficulties in securing seed capital for revolving funds with local government budget deficits and conflicting priorities

The scarcity of general funds makes it difficult for localities to identify and commit a seed amount – e.g., $100,000 to $200,000 – to set up a revolving fund.

6.1.2.3 Elected bodies are hesitant to set aside funds in "protected accounts"

Establishing an energy function requires planning, budgeting, financing, and accounting for the funds. Without sustained political support, revolving loan funds are vulnerable to redirection by administrators and legislators to balance budgets, especially as they grow. Retaining and protecting revolving funds is critical to the long-term viability of the energy function. By protecting funds, elected officials assure the stability of energy efficiency programs and can create self-sustaining operations.

Local officials need to shift their thinking from viewing energy as an expense to viewing it as an investment with a favorable financial return. The fact that most local officials don't view energy projects as a quality investment points to the need for better behavioral research on how local officials could view energy projects in a different way, and educational and awareness building programs to try to shift perceptions and behaviors.

6-2. PROPERTY TAX-BASED ENERGY FINANCING DISTRICTS

The 2008 California Long Term Energy Efficiency Strategic Plan establishes a goal for municipalities to develop model programs and to pilot energy finance districts (EFDs - see the discussion on energy finance districts in the box below). California cities and counties can set up property tax-based EFDs, either through California Assembly Bill 811, or through the Mello-Roos legislation, which authorizes localities to establish property tax assessment districts for fire, safety, and other services. AB811 and Mello-Roos give municipalities tools to help residents finance energy retrofits as an alternative to home equity lines of credit (HELC) and other traditional financing.

Our research found that EFDs offer promise, but the concept needs improvements in marketing, operations, and administration before it is ready to expand. Several barriers exist to the use of EFDs, including unproven consumer demand for these financial products compared to other mechanisms (e.g., HELC,) and structural and administrative challenges to bring these mechanisms to scale.

A few communities are piloting EFDs with mixed success. These pilots should be evaluated carefully by the CPUC, local government, and the financial services industry. The evaluations should ask about what people liked and did not like and what other types of financing mechanisms and administrative structures may address barriers.

The CPUC and other partners should eliminate structural barriers to EFDs such as the taxable status of the bonds and the priority of EFD loans when there are defaults.

What is an Energy Financing District?

Energy financing districts enable local governments to raise money by issuing bonds to fund energy projects (though bonds are not the only possible source of funding). The financing is repaid over a set number of years through a "special tax" or "assessment" on the property tax bill of only those property owners who choose to participate in the program. The financing is secured with a lien on the property, and, like other taxes, is paid before other claims against the property in the case of foreclosure. There is little or no up-front cost to the property owner, and if the property is sold before the end of the repayment period, the new owner inherits both the repayment obligation and the financed improvements.

Energy Financing Districts allow homeowners a long repayment period, at potentially a lower interest rate, and with tax-deductible interest payments. Unlike most other financing options, the repayment obligation transfers when the property is sold, allowing homeowners to invest in improvements that will pay back over a longer timeframe than the owner intends to remain in the house. For local governments, an EFD provides an opportunity to address climate change locally, to support residents' environmentally-friendly building improvements at low cost to government, and to strengthen the local economy in energy efficiency retrofitting and solar installation. Because the loans are secured by property liens, an EFD program provides virtually no risk to the local government's general fund.

6.2.1   Experience with Energy Finance (Assessment) Districts

6.2.1.1 Berkeley and Palm Desert's EFDs have mixed results

Changes are happening continuously on this dynamic front. In the summer of 2010, a new challenge was posed by Fannie Mae and Freddie Mac's resistance to these energy loans.

Berkeley used the Mello-Roos legislation to establish its pilot energy financing initiative, Berkeley FIRST (Financing Initiative for Renewable and Solar Technology). Berkeley FIRST helped residents identify renewable energy opportunities and assisted them in financing and installing renewable technologies. The program allowed property owners to repay loans from the City's Sustainable Energy Financing District over a 20-year period through their property tax bills.

Palm Desert has financed three rounds of bonds totaling $12.5 million, using the legislative authority of AB811. The first round was $2.5 million from the general fund. The second round of $5.0 million was financed by a bond issued by the City's Redevelopment Agency. The third round is financed by Wells Fargo Bank from the sale of lease revenue bonds secured on City Hall (see the discussion on Palm Desert's Energy Independence Program in the box below). Palm Desert's EFD applies to both commercial and residential property owners, but almost all of the loans are residential.

Palm Desert's Energy Independence Program

The City of Palm Desert went through an RFP process to solicit bonds. The most favorable deal was a lease revenue bond with a variable interest rate starting at 2.8%. The City purchased an insurance policy to cap the variable interest rate at 6.2%.

As with Berkeley's experience, there was very limited interest from financial institutions. The City decided to contract with Wells Fargo Bank, with whom it has a preexisting relationship. Also noteworthy is that the City's credit rating is very high. The City provided City Hall as collateral.

The energy loans are available to property owners at 7% simple interest, and the term can be up to 20 years. The minimum loan amount is $5,000; the maximum, $100,000.

The City estimates that if it had $30 million in financing, it could finance 2000 projects with an average value of $20,000, making a significant impact in energy savings goals.

6.2.1.2 Berkeley and Palm Desert received strong initial demand

All 40 reservations available for the Berkeley FIRST pilot were filled within 15 minutes after the online application opened. However, about two-thirds of the applications were later withdrawn, mainly because the interest rate that Berkeley FIRST charged (6.75%, plus 1% for administration costs) was higher than other market offers. Due to the limited time the funding was available compared to the length of time required to permit,

acquire, and install a photovoltaic system, the applicants who withdrew could not be replaced. Many who withdrew decided to finance the improvements in other ways (e.g., a home equity line of credit). At the end of the pilot, 13 participants had used the program's funding to install systems.

As of June 2009, Palm Desert had financed 190 projects, had 290 people on a waiting list, and was also about to approve a new round of financing with Wells Fargo to fund the backlogged projects. The City's first round of financing sold out in three weeks, and the second in five weeks. The projects funded were about half energy efficiency and half solar. Energy efficiency loans averaged about $12,000, while solar loans averaged about $32,000. The energy efficiency loans were used primarily to replace air conditioning systems.

6.2.1.3 Other jurisdictions have also set up EFDs

Sonoma County is preparing to launch a $55 million regional EFD that will provide financing for energy and water conservation retrofit projects. The County plans to sell bonds and will likely make an aggregate investment when it has $40 million in funded work. Sonoma is taking its time to launch its program, trying to benefit from lessons learned from other communities.

Boulder County, Colorado is experimenting with a property-tax based financing program that differs somewhat from the Berkeley and Palm Desert EFDs. In Boulder's program, applications are taken before the County issues any bonds, so the lenders understand the real demands and risks. To evaluate the program, Boulder will require each participant to sign a release so the County can use utility bill data to track energy savings and savings per dollar invested.

In Babylon, New York, the Long Island Green Homes Program expanded its definition of solid waste to include CO^2. This allowed $2.5 million of the Town's solid waste reserve fund to be used to finance energy and solar retrofits. Funding is available only if the home to be upgraded already meets the ENERGY STAR standard for new homes. Thus far, 169 homeowners have submitted applications for approximately $1.2 million. The average project costs $7,100 and is expected to save 28% of the home's energy use.

Montgomery County, Maryland is designing a program that leverages the federal Property Assessed Clean Energy (PACE) loan program (see the discussion on Montgomery County, Maryland in the box below). It uses energy audits to promote, screen, and pre-quality loans. The County is setting up the program so that it is self-sustaining financially.

Montgomery County, Maryland

The County is requesting $36,694,430 from the U.S. Department of Energy's Energy Efficiency and Conservation Block Grant (EECBG) program over three years. The funds will be used to seed the PACE loan program. In the Montgomery County version of PACE, called HELP, a homeowner obtains a home energy audit from a certified auditor to identify energy efficient and renewable energy measures. Based on the audit, the County provides a zero interest loan. The loan is added to the property tax, to be repaid over 15 years. The loan is tied to the property and continues to be paid by the resident (not necessarily the originator) until it is discharged. The program also provides loan guarantees to private lending institutions for large multi-family and common ownership community buildings.

EECBG funds will be used to seed PACE for the first $5 million. At that time, the County will issue a bond to replace the EECBG seed money allowing another $5 million in PACE loans. This will continue until the County has reaches its stated bond limit of $10 million. After that, the available funds will be from loan repayments, earned interest, and grant funds that may be placed in the account.

The funds for the loan guarantees will be any EECGB funds remaining after PACE and training and administrative costs are subtracted. These loans will be will be available to private lending institutions for loans made to multi-family/common ownership community buildings until the end of the grant period.

The rate of expansion in the combined loan funds (PACE and Loan Guarantees) will be determined by market demand for either or both PACE and private loans. This process should be sustainable.

Based on the experience of Berkeley and Palm Desert, many other jurisdictions— including Placer County, San Diego, San Francisco, and the Western Riverside Council of Governments are setting up pilots. At the time this document was being prepared, more than 30 cities and counties in California are considering EFDs.

6.2.2   Local Government Efforts to Help Reduce the Barriers with Initial EFDs

6.2.2.1 *To get better financing rates, some communities are beginning to band together to create more demand and volume*

In July 2009, the Western Riverside Council of Governments (WRCOG), comprising 13 cities, a number of special districts, and the County, issued a request for proposals for providing financing for solar, energy efficiency, and water. Aggregating demand to make the financial packages larger would help address concern from commercial banks that these deals are too small to make them attractive.

WRCOG identified a financial partner to assist with the implementation of its Energy Efficiency Program. The planned funding source is bonds. The first round of funding is planned for October or November 2010 for $12.5 million. The goal is to fund projects at approximately 500 properties.

6.2.2.2 To scale up the financing available and to expand EFDs across the state, banks are needed to provide financing

Cities such as Palm Desert and Berkeley were challenged to identify banks willing to participate in non-traditional energy financing arrangements. Only one bank is participating in the Palm Desert program. Berkeley contacted numerous banks, but only a single bank was interested in lending to Berkeley FIRST, and only for a limited amount of funding and time. More financial institutions supporting EFDs are needed to allow jurisdictions greater flexibility in designing programs and to scale the amounts of funding available. At the time this document was being prepared, significant disruption had occurred within the commercial credit markets in the U.S. and it is uncertain to what extent this has impacted the ability of EDFs to obtain funding, and how much is due to general market acceptance and familiarity with EDFs.

6.2.3   Challenges to Expand EFDs to Meet Community Needs

6.2.3.1 The administrative cost and effort to form an EFD are relatively high

Costs and efforts involved include planning, securing sources of funds, adopting the program legally, setting up an administrator, and designing the business processes and related information systems. The relatively high cost and effort makes EFDs unattractive for many communities to pursue on their own.

6.2.3.2 EFD bonds are less attractive because they are not tax-exempt

EFD bonds are not tax-exempt and the City of Palm Desert's Energy Office identified this as a major hurdle. Because the bonds must compete with tax-exempt bonds that typically bring higher net returns to investors due to tax advantages, EFDs must pay bond investors higher rates. Program loan rates must also be correspondingly higher.

The IRS stipulates that municipal bonds can only be sold to finance public improvements. So, amending the federal tax code to allow tax-exempt financing for energy loan programs could be important to allowing EFDs to be competitive long-term. As of August 2010, proposed federal legislation to address this barrier remained stalled in a congressional committee.

6.2.3.3 The relatively small size of the bond offerings for EFDs makes them relatively unattractive

The small size of the bond offerings for EFDs causes set-up costs to be high as a percentage of the offering and tends to inflate the interest rate. Regional or multi-jurisdictional bond offerings may be needed to get the administrative and interest costs to acceptable levels.

6.2.3.4 Impacts on credit ratings, upfront costs for administration, and property transfer concerns are additional barriers

Some communities are reluctant to issue bonds or take out loans for EFDs because of concern about the impact on their credit rating. In addition, many communities are not able to administer EFDs because of upfront costs, and costs to market, sell, and administer individual loans.

Some interviewees indicated that residents are hesitant to take on EFD loans because they are concerned about the effect of transferring the loan on the sale of the property or facing pressure to pay it off prior to selling their property.

6.2.3.5 Banks face barriers to participating, including mortgages, HELCs, and other bank loans subordinated to EFD loans

Existing lenders on commercial and residential property are likely to be concerned about EFD loans because of the senior nature of the lien (they are on the property tax bill), particularly in markets with declining property values. In those markets, it may be advisable to wait until home prices have stabilized somewhat, or to require a minimum loan-to-value ratio.

Many deeds of trust that secure purchase loans on properties in California can give lenders certain rights in the event a senior tax or assessment lien is placed on a property. These loan provisions may result in an adverse action to an EDF obligation, such as a lien, by the lender and may therefore limit the ability of an EDF to serve a community member. This matter also requires that communities considering EDFs seek specific counsel from their city attorney, county counsel, or bond counsel.

6.2.4   Other Concerns and Observations

- The availability of loans for large items may encourage residents to ignore low-hanging fruit such as sealing, insulation, and other measures that are inexpensive but have good payback. As such, it may be important to use the loan process as a opportunity to reinforce other efficiency opportunities that do not require financing.

- It is not clear that communities have carefully examined other options. For example, Berkeley residents found that they could achieve the same goal at lower cost using more traditional financing options, such as home equity lines of credit. They found those options after exploring the EFD option. The best focus for local government on financing may be to help residents figure out what makes sense for them and then helping to connect them to existing sources of financing or EFDs depending on the best solution at hand.

- The experience to date points to the strong need for an evaluation that addresses the effectiveness of EFDs. Such an evaluation should address the following issues:

    o What are realistic parameters in terms of administrative costs and interest rates?

- How many households can realistically be served with these parameters?

- Do such programs miss the low-hanging fruit?

- What kind of savings are such programs obtaining?

- What are the long-term implications of these programs for the owner, especially in terms of transfer of the obligation?

- Realistically, can these programs be made to work?

- What about alternative programs where communities join together and then work with / influence banks at regional, state, or national levels to provide lending programs in conjunction with mortgages to mortgage holders that focus on identified savings, verified implementation, verified savings, and recognition of the cost reductions to households?

6.2.5   Efforts to Make Energy Financing District Bonds Tax-Exempt

In order to make the AB811 type programs more attractive to investors and to further bring down rates compared to existing financing, communities in California are currently supporting legislation in Congress to amend the 1987 Taxation and Revenue Code to allow cities and counties across the U.S. to fund energy loan programs with tax-exempt financing. Making the financing tax exempt would likely reduce rates by 1-2%, a significant and favorable change. The Waxman-Markey climate bill recently passed in the U.S. House of Representatives would allow the federal government to provide a guarantee on the bonds issued for these programs, insuring the bonds with the full faith and credit of the U.S. Government. This provision, if enacted, may also lead to reduced risk to bond holders and, therefore, lower interest rates.

6-3.   RECOMMENDATIONS

It is important for local government managers to remember that financing projects will work best when there are a variety of mechanisms available and decision makers can chose what makes the most sense across all of them, considering the capacity of the community, funding objectives, risk, and other factors. Our recommended goals and implementing actions focus on helping communities build self-sustaining capacity, such as using a revolving fund, to finance energy projects for their own buildings as an ongoing activity that can also support staffing and administrative costs.

For energy finance districts, we recommend evaluating current EFDs for the purpose of transferring successful models, best practices, and lessons learned.
Together with continued technical and financial assistance, the CPUC and other stakeholders should work to address legal and other structural barriers to scaling up community energy financing, including but not limited to EFDs.

Appendix A presents the detailed recommendations.

FI.1:   Provide Guidance to Help Local Government's Develop Sustainable Energy
         Enterprises (SEE): Many local governments have an opportunity to develop
         financially-self sustaining energy enterprises/offices by planning their enterprises
         in a way that create a stream of cash from technical and financial services to
         internal and external users.
FI.2:   Local Governments Implement Key Best Practices for Government Buildings.
FI.3:   Establish and Monitor Select Pilot Revolving Loan Funds.
FI.4:   Form Statewide EFD/Community Finance Working Group.
FI.5:   Conduct Training and Education.
FI.6:   Evaluate EFDs.
FI.7:   Support Legislation to Reduce Legal Barriers to EFDs.

GLOSSARY

AB32	Assembly Bill 32, California's Global Warming Solutions Act of 2006
AB811	Municipal property tax based financing. Formal name of Legislation is: Contractual Assessments: energy efficiency improvements
ABAG	Association for Bay area Governments
AG	Attorney General
AIA	American Institute of Architects
ARB	California Air Resources Board
ARRA	American Recovery and Reinvestment Act
BOMA	Building Owners and Managers Association
Build It Green (BIG)	Non-profit organization, established GreenPoint Rated system
CBSC	California Building Standards Commission
C&I	Commercial and industrial
CALBO	California Building Officials
CALGreen	California's first-in-the-nation Green Building Standards Code
CAP	Climate Action Plan
CARE	Community Action for a Renewed Environment Program
CCAN	California Climate Action Network
CCAR	California Climate Action Registry
CCI	Clinton Climate Initiative
CCP	ICLEI Cities for Climate Protection campaign
CEC	California Energy Commission
CECO	Commercial Energy Conservation Ordinance
CEESP	California Energy Efficiency Strategic Plan
CEQA	California Environmental Quality Act
CGBSC	California Green Building Standards Code
CIP	Capital Improvement Program
Climate Action Reserve	A national offsets program working to ensure integrity, transparency and financial value in the U.S. carbon market
Cool California	Online source of tools to reduce emissions and save money; founding partners include State Government Agencies, Universities, and Next 10, a nonprofit organization.
Cool Cities	Program by Sierra Club, a collaboration between community members, organizations, businesses, and local leaders to implement clean energy solutions

CPUC	California Public Utilities Commission
DSM	Demand Side Management
E2PRO	Energy and Environment Program
E85	Fuel blend of 85% ethanol, 15% gasoline
EE	Energy efficiency
EECBG	Energy Efficiency and Conservation Block Grant
EEMIS	Enterprise Energy Management Information System
EERE	Energy efficiency and renewable energy
EMIS	Energy management information system
ENERGY STAR	U.S. government-backed program helping businesses and individuals protect the environment through superior energy efficiency
EPA	Environmental Protection Agency
EPC	Environmental Performance Certificate
ESCO	Energy services company
EUI	Energy use index
GHG	Greenhouse gas
GIS	Geographic Information System
Green Cities California	Online source of best practices in sustainable public policy, by coalition of ten local governments that have implemented groundbreaking environmental policies
GreenPoint Rated	Residential rating system by non-profit Build It Green
GRI	Global Reporting Initiative, a widely used sustainability reporting framework
HERS	Home energy rating system
HVAC	Heating, ventilation, and air conditioning
ICLEI	Local Governments for Sustainability
ILG	Institute for Local Governments
IOU	Investor owned utility
kW	Kilowatt
LED	**Light-emitting diode**
LEED	Leadership in Energy and Environmental Design, internationally recognized green building certification system developed by the U.S. Green Building Council (USGBC)
LEED AP	LEED - Accredited Professionals; certification for a professional that can evaluate LEED for new and modified buildings.
LEED-EB	LEED - certification for a professional that can evaluate LEED for existing buildings
LG	Local government

LGOP	Local Government GHG Protocol: guidance on how to inventory GHG emissions resulting from government operations; developed by ARB, CCAR, TCR, and ICLEI. TCR adopted LGOP in 2009 for use by local government reporters.
Mayors Agreement	U.S. Conference of Mayors Climate Protection Agreement
MTCO2e	Metric tons carbon dioxide equivalent
MW	Megawatt
OBF	On bill financing
PGC	Public goods charge
PV	Photovoltaic
RCx	Retro-commissioning
ROI	Return on Investment: A performance measure used to evaluate the efficiency of an investment or to compare the efficiency of a number of different investments. To calculate ROI, the benefit (return) of an investment is divided by the cost of the investment; the result is expressed as a percentage or a ratio. The return on investment formula: $$ROI = \frac{(Gain\ from\ Investment\ -\ Cost\ of\ Investment)}{Cost\ of\ Investment}$$
SB375	California Legislation Known as Redesigning Communities to Reduce Greenhouse Gases
SEP	California's State Energy Plan
Strategic Plan	California Energy Efficiency Strategic Plan
TCR	The Climate Registry
T&E	Training and education
Title 24	The California Building Code governing energy efficiency in buildings
U.S. DOE	U.S. Department of Energy
UC	University of California
USGBC	U.S. Green Building Council, which established the Leadership in Energy and Environmental Design (LEED) green building certification system
VFD	Variable frequency device
VMT	Vehicle miles traveled
ZED	Zero Energy District
ZEH	Zero Energy Home
ZNE	Zero Net Energy

APPENDICES

Appendix A –
Recommendations

Local Government Strategic Energy Action Report Recommendations
PLANNING

			BARRIER ADDRESSED						
MILESTONES TO HELP LOCAL GOVERNMENTS ACHIEVE STRATEGIC PLAN GOALS	IMPLEMENTING ACTIONS TO ACHIEVE MILESTONES	TIMEFRAME	Communities know how to find expertise but need funding to do so	Lack of political champions at the elected level	Reluctance to act because of concerns about impacts on growth/ development/ economy	Committing management and staff	Policy uncertainty on AB 32, SB 375, etc. makes local action more challenging	Lack of awareness of the opportunities and risks	CEESP GOALS
PL.1* **Communities Make Leadership Commitment:** 30%, 70%, and 100% of all California Cities and Counties to be either ICLEI Members, Signators to the Mayors Convention, or Members of the California Climate Action Registry by 2012, 2015 and 2018, respectively	PL.1.1 Encourage communities to join and retain membership in one or more of these organizations. This study found a strong correlation between membership in these organizations and leadership on energy.	2012-2018		√		√			4-1, 4-3
PL.2 **Localities Incorporate Energy into General Plan Updates:** 100% of all California Cities and Counties to update their general plan to address energy and climate change. This report provides several examples of approaches.	PL.2.1 Encourage local governments to meet general planning goals to achieve this goal. The CEESP establishes incorporating energy into general plans as an important goal and this study has found that general plans strengthen community support for energy and climate issues.	2015			√	√	√	√	4-2
PL.3 **Localities Adopt Specific Energy Action Plans**	PL.3.1 Plans should be comprehensive and measureable. The plan should be approved by the local governing body. The plan should address local government energy use and contain	2012	√		√		√	√	4-4, 5-2

MILESTONES TO HELP LOCAL GOVERNMENTS ACHIEVE STRATEGIC PLAN GOALS	IMPLEMENTING ACTIONS TO ACHIEVE MILESTONES	TIMEFRAME	BARRIER ADDRESSED						CEESP GOALS
			Communities know how to find expertise but need funding to do so	Lack of political champions at the elected level	Reluctance to act because of concerns about impacts on growth/ development/ economy	Committing management and staff	Policy uncertainty on AB 32, SB 375, etc. makes local action more challenging	Lack of awareness of the opportunities and risks	
	residential, commercial, and industrial sector plans and implementation strategies (including local codes and financing) to meet broader 2020 and 2030 energy goals. They should manage and minimize energy uses through revised or updated planning and zoning ordinances as part of SB 375 implementation. Also reduce water and wastewater for significant energy savings. The plan can be standalone or part of other documents (see Planning chapter). Localities need technical assistance to be effective with this.								
PL.4 **Create Templates and Tools for General Plans, Energy, Climate and Sustainability Plans for local energy planning that are capacity based**	PL.4.1 A toolkit of planning documents and processes that maximize energy action is needed. Specifically: templates for planning documents that enable specific, implementable and measureable energy action.	2010 Q4				√	√	√	5-1, 5-3, 5-4, 4-3
	PL.4.2 There is an important need to develop performance metrics for measuring energy and greenhouse gas savings, and tools to track, measure and	2010 Q4			√	√	√	√	5-1, 5-3, 5-4, 4-3,

MILESTONES TO HELP LOCAL GOVERNMENTS ACHIEVE STRATEGIC PLAN GOALS	IMPLEMENTING ACTIONS TO ACHIEVE MILESTONES	TIMEFRAME	Communities know how to find expertise but need funding to do so	Lack of political champions at the elected level	Reluctance to act because of concerns about impacts on growth/ development/ economy	Committing management and staff	Policy uncertainty on AB 32, SB 375, etc. makes local action more challenging	Lack of awareness of the opportunities and risks	CEESP GOALS
	evaluate actions for all plans adopted This will maximize the energy benefits of these activities.								1-6
PL.5 **Develop Strategic Planning Process for Local Governments**	PL.5.1 Local government would benefit from a model process they can use for: > Running stakeholder processes > Seeking a community vision > Obtaining buy-in from community leadership > Learning re energy/planning nexus	2010 Q4			√	√		√	5-2, 4-3, 3-4

Local Government Strategic Energy Action Report Recommendations
GOVERNMENT BUILDINGS

MILESTONES TO HELP LOCAL GOVERNMENTS ACHIEVE STRATEGIC PLAN GOALS		IMPLEMENTING ACTIONS TO ACHIEVE MILESTONES		TIMEFRAME	BARRIER ADDRESSED			CEESP GOALS
					Financial constraints	Staffing constraints and lack of expertise and experience necessary to inform and influence key decision-makers	Inability to complete projects within three-year utility program cycle	
GB.1	**Local Government Buildings Energy Action Plan:** Every locality will have an energy reduction plan for its internal energy use by December 31 2014. The plan will include a five year action plan, a procedure for updating the plan every five years, metrics for measuring progress in all key areas, and long term goals that will enable the community to have met zero net energy for their own existing buildings by 2030. All new buildings will be zero net energy by 2020	GB.1.1	Localities to develop energy action plans for their own buildings	2014		√	√	3-1
		GB.1.2	Provide guidance and templates for developing plans for communities of different sizes.	2011		√		3-1
GB.2	**Energy Benchmarking**	GB.2.1	Local governments should benchmark their buildings, their fleets, and their outdoor lighting, and water uses by 2012. Benchmarking should be consistent with procedures established under Section 25402.10 of the Public Resources Code. Buildings that have a demand less than 5kW are exempt but are encouraged to take all cost effective energy efficiency actions.	2012				3-1, 3-2

MILESTONES TO HELP LOCAL GOVERNMENTS ACHIEVE STRATEGIC PLAN GOALS	IMPLEMENTING ACTIONS TO ACHIEVE MILESTONES		TIMEFRAME	BARRIER ADDRESSED			CEESP GOALS
				Financial constraints	Staffing constraints and lack of expertise and experience necessary to inform and influence key decision-makers	Inability to complete projects within three-year utility program cycle	
GB.3 Regional Collaboration	GB.3.1	Smaller communities with limited resources are encouraged to join collaborative efforts with neighboring communities to achieve critical mass to reach these goals and actions. Develop leverage regional centers (approach discussed in the code compliance and advanced codes chapters.)	Ongoing		√	√	3-1, 3-2
GB.4 Building Monitoring	GB.4.1	Localities to actively monitor buildings and other facilities with a demand of 10 kW or greater. The monitoring should be at the level of key systems and subsystems.	2014				3-1, 3-2
	GB.4.2	This study has found that it is often not practical for small communities to set up monitoring programs. There is a need for a monitoring service for communities to track building use. Such a service could be offered by a single city in each county.	2012		√		3-1, 3-2

MILESTONES TO HELP LOCAL GOVERNMENTS ACHIEVE STRATEGIC PLAN GOALS		IMPLEMENTING ACTIONS TO ACHIEVE MILESTONES		TIMEFRAME	BARRIER ADDRESSED			CEESP GOALS
					Financial constraints	Staffing constraints and lack of expertise and experience necessary to inform and influence key decision-makers	Inability to complete projects within three-year utility program cycle	
GB.5	**Community Innovation Center**	GB.5.1	Similar to the need that would be met by Regional Centers, there is a need for Community Energy Innovation Center(s) so localities can collaborate more easily to identify existing and emerging technologies (efficient and renewable) which are particularly applicable to their needs. This center should provide advice, consultation, and conduct pilots. A specific goal of this center will be to provide projections as to when technologies will be commercially viable and ready for inclusion in energy plans. Examples may be solar powered street lighting, electric vehicle fleets, etc. The center may be established as part of or with resources from an existing effort that is complimentary at the state or local level, such as a Regional Center.	2013		√	√	3-5
GB.6	**Reporting**	GB.6.1	Encourage localities, including those in the CPUC's LGP program, to self-report annually, on advances toward the goals of this recommendation.	Begin 2011				3-5
GB.7	**Implement Best Practices**	GB.7.1	Local governments to identify existing practices and gaps in organizational aspects such as: > Create an energy advisory committee/working group > Employ an energy manager, or designate a person who is responsible for the implementation of the energy plan.	2011				3-1, 3-2
		GB.7.2	Local governments to identify existing practice and gaps in planning aspects such as: > Develop an inventory of the buildings and energy use	2011				3-1, 3-2

MILESTONES TO HELP LOCAL GOVERNMENTS ACHIEVE STRATEGIC PLAN GOALS		IMPLEMENTING ACTIONS TO ACHIEVE MILESTONES	TIMEFRAME	BARRIER ADDRESSED			CEESP GOALS
				Financial constraints	Staffing constraints and lack of expertise and experience necessary to inform and influence key decision-makers	Inability to complete projects within three-year utility program cycle	
		> Conduct screening audits of all buildings to identify potential priorities. > Prioritize energy actions and develop a multi-year plan > Prepare investment grade audits to identify budget priorities and refine the multi-year plan > Use a formal budgeting process to prioritize and pre-approve projects and plan for multi-project financing > Pre-approve projects in a budget to set priorities and to give department managers maximum flexibility to obtain advantageous vendor/ESCO contracts and financing > Review and approve efficiency projects as investments, not expenditures					
	GB.7.3	Local governments to identify existing practices and gaps in management processes such as: > Use and leverage management processes and energy monitoring systems > Take advantage of turnkey services	2011				3-1, 3-2
	GB.7.4	Local governments to identify existing practices and gaps in energy efficiency measures such as: > Establish an energy efficiency purchasing policy > Retro-commission buildings > Launch or expand wastewater and water energy efficiency programs > Require LEED/or green building standards for municipal buildings	2011-2012				3-1, 3-2

Local Government Strategic Energy Action Report Recommendations
CODE COMPLIANCE

MILESTONES TO HELP LOCAL GOVERNMENTS ACHIEVE STRATEGIC PLAN GOALS		IMPLEMENTING ACTIONS TO ACHIEVE MILESTONES	TIMEFRAME	Lack of adoption of a sound code compliance action plan, including best practices	Lack of strong municipal leadership and motivation to drive code compliance	Inadequate staffing levels reduce the effectiveness of inspections	Lack of training and effects on proficiency	Insufficient plan check and inspection processes and procedures	CEESP GOALS
CC.1	**Improve Code Compliance Rate:** Increase the capability of all California communities so that by 2014 Title 24 compliance is 98 percent and there are long-term self sustaining mechanisms in place to assure that same level of compliance as code changes occur	CC.1.1 Establish Regional Centers to support various types of code compliance activities especially for small local governments. These centers could be co-located with other functions (e.g., regional council of government, city or county that offers to host the center). See Action CC.2.1 below for more details.	2012	√				√	1-1, 2-1, 2-2
		CC.1.2 Localities should enact local code compliance action plans. Code compliance action plans should include a baseline assessment of compliance rates, an improvement plan, and a three year cycle for monitoring and reporting to the local governing body.	2013	√	√			√	1-1, 2-1, 2-2

MILESTONES TO HELP LOCAL GOVERNMENTS ACHIEVE STRATEGIC PLAN GOALS	IMPLEMENTING ACTIONS TO ACHIEVE MILESTONES	TIMEFRAME	BARRIER ADDRESSED					CEESP GOALS
			Lack of adoption of a sound code compliance action plan, including best practices	Lack of strong municipal leadership and motivation to drive code compliance	Inadequate staffing levels reduce the effectiveness of inspections	Lack of training and effects on proficiency	Insufficient plan check and inspection processes and procedures	
	CC.1.3 Establish mechanisms to implement this goal: > Regional code protocol sharing information exchanges, > Regional code protocol sharing development, > Incentives for supporting labor time to send inspectors and plan reviewers to training courses > Resources for part or full time specialized staff to train and build capacity within building departments (e.g., similar to SDG&E pilot with Chula Vista)	2013	√	√	√	√	√	2-1, 2-2
	CC.1.4 Programs for private companies to collaborate with local governments to develop completely digital code compliance systems with on-site capabilities and wireless connectivity. Such a system should include code information, compliance protocols, plan review documentation, project timelines, reference materials, scheduling, inspections, photographs, training, web access, and other features to allow the entire compliance process to be conducted digitally.	2012	√				√	2-1, 2-2
	CC.1.5 All localities establish digital code compliance systems by 2016.	2016	√				√	2-1, 2-2

MILESTONES TO HELP LOCAL GOVERNMENTS ACHIEVE STRATEGIC PLAN GOALS		IMPLEMENTING ACTIONS TO ACHIEVE MILESTONES		TIMEFRAME	BARRIER ADDRESSED					CEESP GOALS
					Lack of adoption of a sound code compliance action plan, including best practices	Lack of strong municipal leadership and motivation to drive code compliance	Inadequate staffing levels reduce the effectiveness of inspections	Lack of training and effects on proficiency	Insufficient plan check and inspection processes and procedures	
CC.2	Establish Regional Centers For Code Compliance and New Codes and Standards: These centers should be multi-purpose, offering support for planning, government buildings, energy technology, codes, and finance.	CC.2.1	Open regional support centers to support jurisdictions, exchange best practices and staffing resources, and provide resources and support for digital code compliance efforts (servers, technical support, and training). Centers should be designed to support the particular needs and requirements of smaller local governments.	2013-2015	√		√	√		5-1. 5-3, 5-4
		CC.2.2	Regional support centers should provide mechanisms to easily allow communities to "borrow" regional specialized plan review and enforcement staff to augment local inspection staff.	2013-2015	√		√	√		5-3. 5-4
CC.3	Provide Grant Opportunities for Specialized Training and Staff Resources to Support training of Local Code Enforcement Staff	CC.3.1	Through appropriate organizations, augment existing classroom training as necessary to provide frequent offerings and thorough coverage of the existing code base.					√		2-3
		CC.3.2	Through appropriate organizations, expand field training opportunities focusing on applications in real world settings					√		2-3
		CC.3.3	Through appropriate organizations, establish mentoring programs for on-site inspections so that every inspector is mentored, as appropriate.				√	√		2-3

MILESTONES TO HELP LOCAL GOVERNMENTS ACHIEVE STRATEGIC PLAN GOALS		IMPLEMENTING ACTIONS TO ACHIEVE MILESTONES		TIMEFRAME	BARRIER ADDRESSED					CEESP GOALS
					Lack of adoption of a sound code compliance action plan, including best practices	Lack of strong municipal leadership and motivation to drive code compliance	Inadequate staffing levels reduce the effectiveness of inspections	Lack of training and effects on proficiency	Insufficient plan check and inspection processes and procedures	
		CC.3.4	Localities establish plan review and inspection performance criteria and randomly review five percent of activities	2014				√	√	2-3
CC.4	<u>Establish State Code Inspector Certification Program</u>	CC.4.1	There is a need for a plan and commitments to establish a statewide code compliance inspector certification program					√	√	2-3

Local Government Strategic Energy Action Report Recommendations
ADVANCED CODES

MILESTONES TO HELP LOCAL GOVERNMENTS ACHIEVE STRATEGIC PLAN GOALS		IMPLEMENTING ACTIONS TO ACHIEVE MILESTONES		TIMEFRAME	BARRIER ADDRESSED			CEESP GOALS
					Time and resources to adopt new codes	Obtaining CEC approval to adopt Advanced Codes	Building or maintaining the capacity among architects, developers, and builders to support innovation needed to accomplish goals	
AC.1	**Achieve Zero Net Energy for Buildings:** Support and encourage local government to undertake development of advanced building codes that will lead to zero net energy consumption for all new buildings by 2020 and zero net energy consumption for the existing building stock by 2030	AC.1.1	Each local government to develop a comprehensive long-term energy plan for local government buildings that includes goals for progressing toward zero net energy buildings	2013				1-1, 1-7
		AC.1.2	. Incentives and related policies to support advanced codes should encourage communities to have a comprehensive plan in place to assure code compliance with Title 24 at a rate exceeding 98 percent by 2014 (See Goal CC.1).	2012	√			1-1, 1-7
AC.2	**Residential Zero Net Energy Codes:** An intermediate goal is for new residential construction codes to achieve net zero energy standards	AC.2.1	Resources needed for new residential codes. These new codes should be based on preexisting collaborative projects with developers on building design and systems that achieve the standard	2012, ongoing	√			1-1, 1-2

MILESTONES TO HELP LOCAL GOVERNMENTS ACHIEVE STRATEGIC PLAN GOALS		IMPLEMENTING ACTIONS TO ACHIEVE MILESTONES		TIMEFRAME	BARRIER ADDRESSED			CEESP GOALS
					Time and resources to adopt new codes	Obtaining CEC approval to adopt Advanced Codes	Building or maintaining the capacity among architects, developers, and builders to support innovation needed to accomplish goals	
	(sufficiently efficient to meet net zero energy with provision for renewables without requiring renewables) by 2016	AC.2.2	Matching grant opportunities for communities that develop codes and implementation strategies that reduce energy use in half of the existing residential housing stock that turns over in a given year by 50 percent by 2018 and by 70 percent by 2022.	2013, ongoing	√		√	1-1, 1-2
AC.3	Provide Support and Incentives for Education and Training on Advanced Codes and Green Building in coordination with Regional Centers (see Code Compliance Recommendations)	AC.3.1	Resources for local governments without advanced energy codes for capacity building and training. This should be part of implementation of the CALGreen code implementation.	2010, ongoing	√			1-5, 5-3, 5-4
		AC.3.2	Support for specialized building department staff, such as San Diego Gas and Electric (SDG&E) has provided to Chula Vista, to develop and implement advanced codes.	2010, ongoing	√			1-5, 5-3, 5-4
		AC.3.3	Support for local government staff to undergo USGBC LEED AP and Build it Green certifier training.	2010, ongoing	√			1-5, 5-3, 5-4
AC.4	Support Existing Regional Code Development Organizational Structures: These structures, such as	AC4.1	Facilitate and catalyze regional information sharing to spur other efforts, through existing channels (e.g. Build It Green Public Agency Councils)	2010, ongoing	√		√	1-5, 5-3, 5-4

MILESTONES TO HELP LOCAL GOVERNMENTS ACHIEVE STRATEGIC PLAN GOALS		IMPLEMENTING ACTIONS TO ACHIEVE MILESTONES		TIMEFRAME	BARRIER ADDRESSED			CEESP GOALS
					Time and resources to adopt new codes	Obtaining CEC approval to adopt Advanced Codes	Building or maintaining the capacity among architects, developers, and builders to support innovation needed to accomplish goals	
	the Build it Green Regional Councils, should be supported in collaboration with Regional Centers	AC.4.2	Host "lessons learned,", "tips and tricks," and "advanced code shortcuts" workshops where successful local governments can share their experiences with other local governments not yet at the implementation or development stages	2010, ongoing	√		√	1-5, 5-3, 5-4
AC.5	Reduce Time for State Approvals of Local Energy Codes that Exceed Title 24 to a Goal of Six Months	AC.5.1	Conduct an assessment and review of ways to reduce the time to approve a local application for energy codes that exceed Title 24 to within six months and present findings to the Building Energy Commission	2011, ongoing		√		1-2

Local Government Strategic Energy Action Report Recommendations
FINANCE

MILESTONES TO HELP LOCAL GOVERNMENTS ACHIEVE STRATEGIC PLAN GOALS	IMPLEMENTING ACTIONS TO ACHIEVE MILESTONES	TIMEFRAME	Government Buildings			Financing Districts						CEESP GOALS
			Lack of knowledge for financing energy projects	Securing seed capital with local government budget deficits	Elected bodies hesitant to set aside funds in "protected accounts"	Administrative cost and effort to form an EFD	EFDs financed at higher rates = higher rate energy loans	Investments in EFDs not competitive with other investments	Relatively small size of bond offerings for EFDs	Resident loan payments, credit rating and upfront admin costs	Bank barriers incl. mortgages, HELCs and other loans subordinate to EFD loans	
FINANCING LOCAL GOVERNMENT BUILDINGS												
FI.1 <u>Provide Guidance to Help Local Government's Develop Sustainable Energy Enterprises (SEE)</u>: Many local governments have an opportunity to develop financially-self sustaining energy enterprises/offices by planning their enterprises in a way that create a stream of cash from technical and financial services to internal and external users.	FI.1.1 Develop guidance and provide workshops to develop a generic business model to implement the SEE concept presented in this report. Guidance should include: > A business model template that shows how to budget for, finance, and account for the energy function's operating costs > Designs and best practices to administer revolving loan funds, energy finance districts (EFDs), and other operations as revenue generating activities to sustain the energy enterprise	2011	√									3-3, 3-4
	FI.1.2 Continue to support workshops, webinars and other educational efforts > Workshops on municipal buildings should	2010	√									3-3, 3-4

MILESTONES TO HELP LOCAL GOVERNMENTS ACHIEVE STRATEGIC PLAN GOALS		IMPLEMENTING ACTIONS TO ACHIEVE MILESTONES	TIMEFRAME	BARRIER ADDRESSED									CEESP GOALS
				Government Buildings			Financing Districts						
				Lack of knowledge for financing energy projects	Securing seed capital with local government budget deficits	Elected bodies hesitant to set aside funds in "protected accounts"	Administrative cost and effort to form an EFD	EFDs financed at higher rates = higher rate energy loans	Investments in EFDs not competitive with other investments	Relatively small size of bond offerings for EFDs	Resident loan payments, credit rating and upfront admin costs	Bank barriers incl. mortgages, HELCs and other loans subordinate to EFD loans	
		present and train participants on how to use and apply the SEE concept, including the revolving fund and energy project accounting templates to their own situations, present model ordinances, and how to leverage utility franchise taxes and other sources of funds, including solid waste, water and wastewater, to sustain energy functions > Workshops should inform participants on opportunities for outside funding and how to incorporate this funding into their programs.											
	FI.1.3	Encourage local governments that receive state funding for government buildings to have a local government buildings energy finance plan (as part of government buildings energy plan) that uses revolving funds or other approaches consistent with the SEE concept. The objective is that their operations become self-sustaining by 2016. Budgeting and accounting for energy investments, savings, rebate funds, and revenue as separately managed funds and appointment of a dedicated energy manager should be minimum	2013	√									3-3, 3-4

MILESTONES TO HELP LOCAL GOVERNMENTS ACHIEVE STRATEGIC PLAN GOALS		IMPLEMENTING ACTIONS TO ACHIEVE MILESTONES	TIMEFRAME	BARRIER ADDRESSED									CEESP GOALS
				Government Buildings			Financing Districts						
				Lack of knowledge for financing energy projects	Securing seed capital with local government budget deficits	Elected bodies hesitant to set aside funds in "protected accounts"	Administrative cost and effort to form an EFD	EFDs financed at higher rates = higher rate energy loans	Investments in EFDs not competitive with other investments	Relatively small size of bond offerings for EFDs	Resident loan payments, credit rating and upfront admin costs	Bank barriers incl. mortgages, HELCs and other loans subordinate to EFD loans	
		requirements of this finance plan. Refer to the Government Buildings Chapter and Recommendations for more information.											
		FI.1.4 Launch a locally matched competitive grant program for communities to develop and pilot financially sustainable energy enterprises (SEE)	2011		√								3-3, 3-4
		FI.1.5 Evaluate and document best practices in resolving funds established by San Jose and other local governments, including those leveraging state Energy Program (SEP) fund to establish revolving funds.	2012	√									3-3, 3-4
		FI.1.6 Coordinate local government building financing and educational activities in a statewide local government buildings financing workgroup. Involve the banking sector in a private industry advisory committee to this group.	2010	√		√							3-3, 3-4
FI.2	Local government Implement Key Best Practices	FI.2.1 Local Governments to create separate account for energy cost accounting tied to budgeted items. The account should be concerned with all energy expenditures, including buying energy, and energy related equipment	2011			√							3-3, 3-4

MILESTONES TO HELP LOCAL GOVERNMENTS ACHIEVE STRATEGIC PLAN GOALS	IMPLEMENTING ACTIONS TO ACHIEVE MILESTONES	TIMEFRAME	BARRIER ADDRESSED									CEESP GOALS
			Government Buildings			Financing Districts						
			Lack of knowledge for financing energy projects	Securing seed capital with local government budget deficits	Elected bodies hesitant to set aside funds in "protected accounts"	Administrative cost and effort to form an EFD	EFDs financed at higher rates = higher rate energy loans	Investments in EFDs not competitive with other investments	Relatively small size of bond offerings for EFDs	Resident loan payments, credit rating and upfront admin costs	Bank barriers incl. mortgages, HELCs and other loans subordinate to EFD loans	
	> Managed by a centralized energy or utility office within the locality and could also include transportation fuels > Developed in a coordinated way with centralized utility invoice payment and other recommendations in Chapter 3I, Government Buildings.											
	FI.2.2 Local governments should employ a dedicated energy manager to drive investments in energy - should have direct access to the locality's chief financial officer.	2013	√									3-3, 3-4
FI.3 Establish and Monitor Select Pilot Loan Funds	FI.3.1 Offer a locally matched competitive grant program for EFD pilots. The program should fund innovative pilots to set up financing in communities that leverage experience to date and that will serve as additional models for other localities.	2011				√						1-4
	FI.3.2 Develop and pilot a best practices toolkit for residential financial planning	2011				√						1-4
	FI.3.3 Develop a community financial needs assessment tool. The assessment templates should help	2011				√						1-4

MILESTONES TO HELP LOCAL GOVERNMENTS ACHIEVE STRATEGIC PLAN GOALS		IMPLEMENTING ACTIONS TO ACHIEVE MILESTONES	TIMEFRAME	BARRIER ADDRESSED									CEESP GOALS
				Government Buildings			Financing Districts						
				Lack of knowledge for financing energy projects	Securing seed capital with local government budget deficits	Elected bodies hesitant to set aside funds in "protected accounts"	Administrative cost and effort to form an EFD	EFDs financed at higher rates = higher rate energy loans	Investments in EFDs not competitive with other investments	Relatively small size of bond offerings for EFDs	Resident loan payments, credit rating and upfront admin costs	Bank barriers incl. mortgages, HELCs and other loans subordinate to EFD loans	
		communities identify opportunities and risks such as size and scale (see barriers presented in Finance Chapter)											
	FI.3.4	Develop EFD Manual: Forms, legal instruments, accounting protocols, organizational structures to set up and administer funds.	2011				√						1-4
FI.4 Form Statewide EFD Working Group	FI.4.1	Form an agency workgroup.	2011						√	√	√	√	1-4
	FI.4.2	Form a financial services advisory group to support plans, pilot projects, and evaluations.	2011					√	√	√	√	√	1-4
FI.5 Conduct Training and Education	FI.5.1	Sponsor EFD workshops at existing conferences or stand alone events. Present tools/ templates.	2011				√					√	1-4
FI.6 Evaluate EFDs	FI.6.1	Conduct a survey and evaluation of AB 811 program implementation in Palm Desert and other pioneering communities.	2011				√	√	√	√	√	√	1-4
FI.7 Support Legislation to Reduce Legal Barriers	FI.7.1	Evaluate and support efforts to make energy efficiency financing more attractive by reducing legal and other structural barriers, such as legislation that would make bonds for EFDs and similar mechanisms tax exempt.	2010					√	√			√	1-4

Appendix B – Building Energy Benchmarking Factsheet

(Source: the State of California, Department of General Services, 2007. Developed to support the Governor's Executive Order S-20-04 and to provide guidance to support the State of California's Green Building Action Plan (for state owned, funded or leased facilities)

BENCHMARKING FACT SHEET

What is benchmarking?

It's a way to rate the energy efficiency of a building, using the federal ENERGY STAR benchmarking system. This provides a "score," which ranks the building on a percentile basis against comparable buildings nationwide. ENERGY STAR also provides the energy intensity, or annual energy use per square foot, which is useful for comparing smaller groups of buildings.

What is the basis for benchmarking?

It's based on a year's worth of energy consumption that is adjusted for the size of the building, its occupancy, the climate, and other factors. It reflects both the physical efficiency of the building and its equipment, and the operational efficiency.

Why is benchmarking useful?

First, it provides a way to recognize efficient buildings. Those with a score of 75 or higher receive the "ENERGY STAR BUILDING" designation. Second, it streamlines energy management for individual buildings and groups of buildings, helping to document energy performance changes over time. Third, it helps management set investment priorities, and to target buildings for efficiency improvements. Fourth, it provides a way to verify energy use reductions over time, which is important to meeting California's efficiency goals.

Why should state buildings be benchmarked?

First, Executive Order S-20-04 and the Green Building Action Plan require all state buildings to be benchmarked by 2007. Second, state buildings must meet the goal of reducing energy consumption by at least 20 percent by 2015, and benchmarking is the easiest way to measure progress toward that goal. Third, it is easy and inexpensive to do.

What does it take to benchmark a building?

It takes a year's worth of utility bills and some basic information about the building (occupancy type, ZIP code, square footage, weekly operating hours, number of occupants, and computers). An energy manager logs onto the ENERGY STAR Web site, creates a building account, and enters the data. Periodically, the data are updated with new utility billing data.

Can I group the buildings by agency?

Yes, buildings can be grouped any way that is useful: by division, by agency, and by state. This allows for tracking and comparison of buildings within the group.

How does benchmarking fit into the overall state energy efficiency effort?

Benchmarking will be used to track progress for all state buildings in meeting the 2015 goals. It will help agency building managers track and prioritize their efforts, identify lagging and leading buildings, and report their successes.

How will the benchmarking process be enhanced?

The Green Action Team is working with the utilities to automate and streamline the billing data part of benchmarking, to make it easier and cheaper to keep benchmarking information up-to-date. The team is also working with ENERGY STAR to improve the reporting of benchmarking data. The Energy Commission is doing research into enhanced benchmarking tools that will provide even more information and feedback to building energy managers.

Which facilities are State agencies responsible for benchmarking?

The Green Building Action Plan states that all occupied State-owned buildings must undergo benchmarking for energy efficiency by 2007. A list of facilities sorted by agency is located on the Green California Web site at http://www.green.ca.gov/EnergyEffProj/default.htm. To ensure consistent compliance with the benchmarking directive, State entities with buildings on the list should appoint a representative to the Green Action Team Energy Efficiency Committee Benchmarking Work Group, which operates under the guidance of the California Energy Commission.

Where can I find more information on benchmarking?

The ENERGY STAR Web site provides full information and details on how to do benchmarking:
http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager

To help coordinate state agency benchmarking, the Green Action Team Benchmarking Work Group will be publishing "how-to" information targeted to state energy managers.

**Appendix C –
Climate Change Resources Available to Local Governments**

U.S. Conference of Mayors Climate Protection Agreement and Cool Cities

The Mayors agreement is well known by many Californian local governments. The agreement presents an opportunity for the highest levels of government leadership to openly demonstrate a commitment to climate action. While the agreement begins with leadership obligation, more practical implementation measures are then required to be identified, researched, prioritized, and documented for local governments to realize real greenhouse gas reductions. Currently, 123 California local government mayors have signed the agreement.

On February 16, 2005, the Kyoto Protocol, the international agreement to address climate change, became law for the countries that had ratified it. On that day, Seattle Mayor Greg Nickels launched the U.S. Conference of Mayors Climate Protection Agreement. Over 500 mayors have signed the agreement to date. Under the Agreement, participating cities commit to take following three actions:

- Strive to meet or beat the Kyoto Protocol targets in their own communities, through actions ranging from anti-sprawl land-use policies to urban forest restoration projects to public information campaigns;

- Urge their state governments, and the federal government, to enact policies and programs to meet or beat the greenhouse gas emission reduction target suggested for the United States in the Kyoto Protocol -- 7% reduction from 1990 levels by 2012; and

- Urge the U.S. Congress to pass the bipartisan greenhouse gas reduction legislation, which would establish a national emission trading system.[1]

Once the commitment is signed, cities have the opportunity to join the Cool Cities program, run by the Sierra Club. The program is designed for those cities that have made a commitment to climate change by signing the U.S. Mayors' Climate Protection Agreement and by joining ICLEI's Climate Protection Campaign. Cool Cities offers a range of implementation tools for reducing emissions: from best practice guides, technical information, and training tools for chapter or group leaders. In addition, ICLEI through their Cool Mayors for Climate Protection (similar to the above) provides information and resources for local officials around the country who would like to address the challenge of climate change.

Local Government GHG Protocol

California Air Resources Board staff partnered with the California Climate Action Registry (CCAR), The Climate Registry (TCR), and Local Governments for Sustainability (ICLEI) to develop local government protocols for GHG assessment. This includes:

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[1] http://www.usmayors.org/climateprotection/agreement.htm.

- A Local Government Operations Protocol: to provide guidance on how to inventory GHG emissions resulting from government buildings and facilities, government fleet vehicles, wastewater treatment and potable water treatment facilities, landfill and composting facilities, and other operations.

- A Community Protocol: to address community-wide emissions such as residential, commercial, and industrial use of energy, transportation, industrial emissions, etc.

The Local Government Operations Protocol was adopted by the Air Resources Board at the September 2009 Board Meeting.

California Air Resources Board – Cool California Local Government Toolkit

The California Air Resources board has created the Cool California website which includes a "local government toolkit" containing a wide range of information, such as:

- Climate Action Planning
  - Take a Climate Challenge
  - Conduct a baseline inventory or profile
  - Adopt an emission reduction target
  - Participate in a structured program, e.g., ICLEI
  - Adopt a climate action plan (word template of CAP provided)
  - Implement policies and measures
  - Monitor and verify results
  - Encourage residents to calculate their carbon footprint
  - Challenge residents to go on a low carbon diet

- How to Save Money
  - Save energy
  - Drive less and drive clean
  - Use green energy
  - Save water
  - Recycle and cut waste
  - Buy green
  - Build green

- Financial Resources
  - Climate action planning
  - Energy efficiency and conservation
  - Transportation enhancement projects
  - Renewable energy

- o Water efficiency, conservation, recycling and reuse
- o Waste reduction and recycling
- o Green building
- o Home Energy Retrofit Program presentation by City and County staff interested in briefing their management on why investing stimulus funds in a regional or county-wide home energy retrofit program is advantageous.
- Case Studies
- Climate Calculators

California Climate Action Registry/Climate Action Reserve – Voluntary GHG Registry

The California Climate Action Registry is a public-private partnership that serves as a voluntary greenhouse gas (GHG) registry to protect, encourage, and promote early actions to reduce GHG emissions. The following 23 California local and regional governments are members of Registry

1.   City and County of San Francisco
2.   City of Arcata
3.   City of Carlsbad
4.   City of Chula Vista
5.   City of Coronado
6.   City of Long Beach
7.   City of Los Angeles
8.   City of Palo Alto
9.   City of Sacramento
10.   City of San Jose
11.   City of Santa Barbara
12.   City of Santa Monica
13.   City of Sunnyvale
14.   City of Thousand Oaks
15.   City of Ventura
16.   City of Vernon
17.   City of West Hollywood
18.   City of Woodland
19.   County of Los Angeles
20.   County of Sacramento

21.   County of Yolo

22.   Plumas County

23.   San Benito County

Other Programs

- ***Cool Counties Climate Stabilization Initiative.*** In July 2007, 12 counties across the United States, along with the Sierra Club, launched the Cool Counties Initiative to mobilize county governments to catalyze bold regional and federal action to address climate change.

- ***Clinton Climate Initiative and C40 Cities.*** In October 2005, representatives of 18 leading world cities met in London to discuss joining forces to tackle global warming and climate change. The representatives saw the need for action and cooperation on reducing greenhouse gas emissions and pledged to work together towards achieving that goal. At the end of the conference, a communiqué was signed which recognized the need for cities to take action and to cooperate on reducing climate emissions. The cities also promised a number of action points, including, most notably, the creation of procurement policies and alliances to accelerate the uptake of climate-friendly technologies and influence the market place. In August 2006, the initiative was further strengthened when former President Clinton and the former Mayor of London Ken Livingstone announced a partnership between the Clinton Climate Initiative and the Large Cities Climate Leadership Group (since then renamed "C40"). This new partnership pledged to reduce carbon emissions and increase energy efficiency in large cities across the world. In California, the only member of the initiative is Los Angeles.

- ***The Institute for Local Government*** has developed a [Best Practices Framework document](). It offers suggestions for local action in ten Climate Leadership Opportunity Areas, both in agency operations and the community at large. An agency can use specific best practice suggestions for stand-alone programs or as part of a broad-based climate action plan to reduce greenhouse gas emissions. The suggestions are designed to reflect the variation among cities and counties and offer a variety of options ranging from simple steps to more complex undertakings.

- ***The Los Angeles Regional Collaborative for Climate Action & Sustainability*** is a network of leadership from government, the business community, academia, labor, and environmental and community groups designed to encourage greater coordination and cooperation at the local and regional levels. The purpose of this collaboration is to share information, foster partnerships, and develop system-wide strategies to address climate change and promote a green economy through sustainable communities.

- ***The California Climate Champions program*** is sponsored by the California Air Resources Board and the British Council, and is part of the International Climate Champions effort. Through a statewide competition, 15 young people who demonstrated a commitment to environmental issues and making a change in their

communities were selected as California Climate Champions for 2008. These champions have been busy helping with local, national, and international projects, as well as working with the media to communicate the urgency of climate change and to engage others to make a difference. Along with champions from Canada, they participated in a "climate camp" over the summer where they talked to leading climatologists and learned more about how to best reach audiences with their messages.

- ***Silicon Valley Joint Venture.*** This group brings together leaders from business, labor, government, the universities, and the non-profit sector in Silicon Valley to think outside the box and build creative solutions. Joint Venture's climate initiatives consist of three distinct programs: The Public Sector Climate Task Force, the Climate Prosperity Council, and Sustainable Buildings.

  1. Public Sector Climate Task Force convenes representatives from many of the public agencies in Silicon Valley to develop strategies for reducing greenhouse gas emissions from city, county, and other agencies' operations. The program will begin with conducting inventories of emissions from publicly owned buildings, vehicles, waste treatment plants and other facilities. Then goals for reducing emissions can be set and targets of opportunity developed. The Task Force will then form a purchasing pool to get the best prices on capital equipment, such as hybrid vehicles and solar panels, to help achieve emissions reduction goals.

  2. Climate Prosperity - The Silicon Valley Climate Prosperity Council brings together leaders and programs from throughout our region and across multiple sectors to address climate change while growing our local economy. The initiative will provide coordination among new and existing economic development and environmental initiatives.

  3. Sustainable Buildings - Joint Venture convenes meetings, brings together stakeholders to address problems, and provides vehicles for cities to access technical solutions, such as joint procurement and/or commonly owned software. The program provides tools, training, and resources that industry, the counties, and the cities need to successfully move toward sustainable buildings and development practices.

ICLEI Membership

ICLEI is established and headquartered in California. ICLEI - Local Governments for Sustainability is an international association of local governments that have made a commitment to sustainable development. Over 1089 cities, towns, counties, and their associations comprise ICLEI's growing membership. ICLEI works with these and hundreds of other local governments through international performance-based, results-oriented campaigns, and programs.[2] The five milestone climate process has been the longest standing and most popular climate action process implemented by California local governments, by both ICLEI members and non-members. While a small audience

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[2] http://www.iclei.org/.

of interviewees explicitly identified ICLEI as their driver, the overall process has become climate mantra for many governments and a very popular roadmap for climate action. Currently, 138 local governments in California are members of ICLEI. ICLEI also provides a wide range of tools to assist governments from measuring their carbon footprint/GHG inventory to implementing GHG reduction activities.

> The ICLEI Cities for Climate Protection (CCP) Campaign assists cities to adopt policies and implement quantifiable measures to reduce local greenhouse gas emissions. More than 700 local governments participate in the CCP, integrating climate change mitigation into their decision-making processes.
>
> The ICLEI climate protection process outlines five milestones:
>
> Milestone 1. Conduct a baseline emissions inventory and forecast.
>
> Milestone 2. Adopt an emissions reduction target for the forecast year.
>
> Milestone 3. Develop a Local Action Plan.
>
> Milestone 4. Implement policies and measures.
>
> Milestone 5. Monitor and verify results.
>
> Local governments can use the Clean Air and Climate Protection software to determine GHG emissions and criteria pollutants. CACP is a downloadable spreadsheet, which ICLEI members can use to input aggregate information about energy usage, waste generation, and vehicle miles traveled (VMT) to calculate a GHG emission inventory. CACP was updated in April of 2009 to include the calculation methods of the Local Government Operations Protocol.

ICLEI recently released a tool for cities www.icleiusa.org/sustainabilitytoolkit (this site gives a preview of the first few pages of the tool but members can only access the full tool) and a new rating tool for "sustainable communities." http://www.icleiusa.org/programs/sustainability/star-community-index/star-community-index .

Sustainable Cities Institute

http://www.sustainablecitiesinstitute.org

The Sustainable Cities Institute (SCI) is a website developed by The Home Depot Foundation. SCI is a clearing house of vetted information and best practices from across the country that can be used by city leaders to implement sustainable practices in their town, city or other jurisdiction. The Institute is committed to helping cities achieve success at these community building efforts by supplying them with direct access to information on sustainable principles and practices, illustrated by case studies about what other communities are doing. This web site is intended to be a central location for sustainability information needed by local governments. The site helps local governments save time and energy that might be spent on research, and instead spend it on making change happen locally. The website contains:

- A sustainable city map which shows interrelationships between sustainability issues in cities such as land use, transportation, buildings, energy, materials and economic development

- Model RFPs and Ordinances relating to sustainability

- Case studies and city profiles

- A library with information on various aspects of sustainable cities including land use, transportation, buildings, energy, materials and economic development

- Marketing tools (posters) and meeting tools (presentations)

- Calculators, checklists and forms

- Forums and webinars

Urban EcoMap

www.urbanecomap.org

Urban EcoMap provides local communities with information on their progress toward meeting greenhouse gas (GHG) reduction goals, and with access to locally available tools and resources for reducing their carbon footprint. Urban EcoMap amasses information on a neighborhood level, organized by zip codes: To date the EcoMap has been developed for two cities: San Francisco and Amsterdam. The map is developed by Cisco through their Connected Urban Development program and supported by a number of partners including the City of San Francisco Department of the Environment.

Through the neighborhood visual display, residents can see their greenhouse gas contributions in the areas of transportation, energy, and waste. This information empowers neighborhoods to identify and take specific actions to fight climate change using approaches such as alternative-fuel vehicle ownership, recycling, and reducing household energy use.

Citizens can make decisions to help decrease the carbon footprint of their geographic regions, their particular zip code, and their city. They can make these choices by gaining visibility into several key factors, including the effort required to make the change, the associated cost or financial benefit, and the environmental impact of the action. Citizens can then share their climate actions with others via social networking.

In the future, the Urban EcoMap will address mobile applications, user-generated content, and access to real-time information pertaining to personal energy usage, transportation, and consumption behavior.

**Appendix D –
Examples of Local Energy-Related Plans**

City/ County	Setting Quantifiable Goals	Plan Specific Quantifiable Measures	Funding Sources Identified	Milestones	Renewable Goals	Responsible Entity	Implement-ation Process Established	Performance Indicators
Alameda	25% reduction in GHG levels below 2005 baseline by 2020	**1.** Adopt "Zero-Waste Strategy" Programs and ordinances; **2.** Amend the Alameda Municipal Code to include sustainable design and green building standards for all new, substantially expanded, and remodeled buildings; **3.** Encourage the Alameda Public Utilities Board to require that Alameda Power & Telecom maintain and expand its source mix to 100% carbon-free energy. Develop a wood burning prohibition ordinance to reduce air pollution in new residential construction; **4.** Develop a program to reduce the use of 2 cycle combustion engines, including the enforcement of existing ordinances; **5.** Develop wood burning prohibition ordinance to reduce air pollution in new residential construction;	Alameda Power & Telecom, City Administrative Costs, AP&T, PG&E, Grants, General Fund, Alameda County Environmental Services, EBMUD, General fund for ordinance development	**1.** Completion of Community GHG Inventory; **2.** Set an emission reduction target; **3.** GHG Reduction Plan; **4.** Implementation Plan; **5.** Monitoring & Evaluation	100% carbon free energy (currently 85%)	No	No - talks about the need to establish implementat-ion process, but does not get specific	

City/ County	Setting Quantifiable Goals	Plan Specific Quantifiable Measures	Funding Sources Identified	Milestones	Renewable Goals	Responsible Entity	Implement-ation Process Established	Performance Indicators
Albany	Reduce GHG emissions by 25% (from 2004 baseline) by 2020	**1.** Zero Emission City Buildings by 2015; **2.** Retrofit Existing Residential Buildings; **3.** Retrofit Existing Commercial Buildings; **4.** Maximize Use of Renewable Energy; **5.** Community Energy Management	On bill financing; low interest loans & energy efficient mortgages	Reduce GHG emissions 25% by 2020 from 2004 baseline level	Install cost effective renewable energy sources on all city buildings and purchase remaining electricity from renewable sources	City Council, Finance, Environmental Resources, Planning & Zoning, Public Works		Percentage of eligible buildings and parking lots with photovoltaic systems within Empowerment District (25% by 2015, 40% by 2020); Percentage of City's building electricity from renewable sources (100% by 2015)
Arcata	GHG reduction goal of 20 percent below year 2000 levels of greenhouse gas emissions by the year 2010.	**1.** Green Building Program; **2.** Time-of-Sale Program; **3.** Solar Roof Program; **4.** City Report on Energy Consumption; **5.** Alternative Fuel Vehicles; **6.** Energy Ordinance for City Funded Projects; **7.** Improve Arcata's Energy Program Website; **8.** Coordinate with Local Energy Groups		**1.** Completion of Community GHG Inventory; **2.** Set an emission reduction target; **3.** GHG Reduction Plan; **4**. Implementation Plan; **5.** Monitoring & Evaluation	**1.** Encourage utility scale transitions to renewable energy; **2.** Conduct education and outreach; **3.** Adopt policies to encourage renewable energy; **4.** Install renewable energy systems on city facilities; **5.** Consider a locally- or regionally-owned green utility; **6.** Solar ready buildings; **7.**	**1.** Energy Committee (lead), Design Review Commission, Planning Commission, City staff; **2.** Energy Committee, City staff	No - one of milestones of CAP is to develop an Implementation Plan	

City/ County	Setting Quantifiable Goals	Plan Specific Quantifiable Measures	Funding Sources Identified	Milestones	Renewable Goals	Responsible Entity	Implement-ation Process Established	Performance Indicators
					Low interest loans; **8.** Wind energy; **9**. Retrofit Wood Stoves.			
Berkeley	80% reduction in greenhouse by 2050 (below 2000 levels)	**1.** Make green building business as usual in the new construction & remodel market; **2.** Enhance energy services and standards and reduce costs of energy upgrades for existing residential properties; **3.** Enhance energy services and standards for existing commercial properties; **4**. Increase residential and commercial renewable energy use; **5**. Increase energy efficiency and renewable energy use in public buildings; **6.** Enhance and expand marketing, outreach, and education regarding building energy use	SD fee, other COB funds, U.S. EPA, BAAQMD, U.S. DOE, COB, PG&E fees,	**1.** The community must reduce the emissions that result from building energy use by 35 percent by 2020; **2.** 2020 goal is to cover 70% of the available roof space with solar thermal or solar electric panels.	**1.** Develop a local, clean, decentralized, renewable energy supply, mostly in the form of residential and commercial solar PV and solar thermal installations.; **2.** Add more renewable energy sources to the electricity grid.	Yes identifies implementing agencies for all measures.	Yes	
Chula Vista	33% reduction of GHGs by 2020	**1.** Clean Vehicle Replacement Policy for City fleet; **2.** Clean Vehicle Replacement Policy for City-Contracted Fleets; **3.** Business Energy Assessments; **4.** Green Building Standard; **5.** Solar & Energy		20% reduction of GHGs below 1990 levels by 2012		Climate Change Working Group, The City of Chula Vista Planning and Building Department, Building Division, The	Yes - Implementatio n plans for all 7 measures	

City/ County	Setting Quantifiable Goals	Plan Specific Quantifiable Measures	Funding Sources Identified	Milestones	Renewable Goals	Responsible Entity	Implement-ation Process Established	Performance Indicators
		Efficiency Conversion Program; **6.** Smart Growth Around Trolley Stations; **7.** Turf Lawn Conversion Program				Department of Conservation & Environmental Services (CES)		
Fremont	Reduce Fremont's greenhouse gas emissions by 25% by 2020							
Irvine	Reduce emission levels to 2000 levels by 2010, 1990 levels by 2020 and to 80% below 1990 levels by 2050	**1.** Any new or major remodel of municipal building over 5,000 sq. ft must be LEED Certified; **2.** Create an Energy Management Team; 3. Establish energy tracking and monitoring program; **4.** Establish short term and long term energy program financing methods; **5.** Establish 100% Participation, 100% Irvine Public information campaign; **6.** Certify all municipal facilities under LEED for Existing Buildings (LEED-EB); **7.** Develop incentives for high performance design and construction in the private sector, such as reduced fees and expedited processing.						Reduce energy use in buildings City-wide 30% by 2015 compared to 2003 levels; +% of renewable energy used City-wide in all new buildings to 40% by 2015 and 60% by 2020

City/ County	Setting Quantifiable Goals	Plan Specific Quantifiable Measures	Funding Sources Identified	Milestones	Renewable Goals	Responsible Entity	Implement-ation Process Established	Performance Indicators
Los Angeles	The plan proposes an ambitious goal of reducing the city's GHG emissions to 35% below 1990 levels by 2030, making Los Angeles the greenest big city in America.	**1.** Green the Power From the Largest Municipal Utility in the United States; **2**. Make Los Angeles a Worldwide Leader In Green Buildings; **3.** Transform Los Angeles Into The Model of an Energy Efficient City; **4.** Help Angelinos Be "Energy Misers"			35% Renewable energy by 2020			
Marin County	Reduce GHG emissions 15-20% by 2020, from 1990 levels.	**1.** Initiate a community energy efficiency rebate program; **2.** Install solar panels on municipal facilities; **3.** Install energy-efficient street lights; **4.** Install green or reflective roofing; **5**. Perform energy-efficient lighting retrofits; **6.** Implement tidal power project; **7.** Implement a form of community choice aggregation; **8.** Purchase "green electricity" from solar, geothermal, wind, hydroelectric sources through green tags; **9.** Or - Purchase "green electricity" from solar, geothermal, wind, hydroelectric sources through green tags (20%)		**1**. Conduct an emissions inventory; **2.** Develop GHG reduction target; **3.** Develop a local action plan; **4.** Implement the local action; **5.** Monitor the progress and report results.				Reduce total countywide energy use by 2% per year to achieve 20% by 2015; increase total megawatts of photovoltaic systems to 15 MW by 2010 and 30 MW by 2015; and decrease fuel consumption by county-owned vehicles 10% by 2010 and 15% by 2015.

City/ County	Setting Quantifiable Goals	Plan Specific Quantifiable Measures	Funding Sources Identified	Milestones	Renewable Goals	Responsible Entity	Implement- ation Process Established	Performance Indicators
San Diego	GHG reduction target of 15% by 2010 using 1990 as the baseline	**1.** Green Building; **2.** Purchase of Energy Efficient Products; **3.** Energy Conservation and Management; **4.** 50 MW Additional Renewable Power by 2013			50 MW Additional Renewable Power by 2013	**1.** Track and report compliance with Resolution on a quarterly basis.		
Sacra- mento	Reduce GHG levels to 1990 levels by 2020	**1.** Public Involvement and Outreach; **2.** Performance Contracting; **3**. Green City Policies; **4**. Work to maximize local and regional renewable energy production with the goal that fifty percent of the energy (electricity, natural gas, motor fuels) consumed within the SACOG region be produced within the SACOG region; **5**.		**2012 - 1.** Reduce energy consumption (electricity, natural gas) of City facilities on a unit basis to ten percent less than the baseline year of 2005; **2.** Reduce City Operations peak electric load to 25 MW (based on 2004 peak load of 28 MW) through energy efficiency, shifting the timing of energy demands and conservation measures. **2030 - 1.** Per the CEC regulation, all	**2012** - **1.** Increase the purchase of renewable energy to meet 10% of the City's operations annual electricity energy usage, above and beyond SMUD's Renewable Portfolio Standard goals; **2.** Increase the purchase of renewable energy to meet 10% of the City's operations annual fleet fuel requirements.		Yes	

City/ County	Setting Quantifiable Goals	Plan Specific Quantifiable Measures	Funding Sources Identified	Milestones	Renewable Goals	Responsible Entity	Implement-ation Process Established	Performance Indicators
				new construction within City limits will be carbon neutral; **2.** Achieve carbon neutral fossil fuel energy use within City limits (electricity, natural gas, motor fuel				
San Fran-cisco	San Francisco's reduction target is 20% below 1990 levels by 2012.	**1.** Increase Incentives, Direct Installation and Technical Assistance - Residential Buildings, Commercial Buildings & Municipal Buildings; **2.** Expand Education and Outreach; **3.** Strengthen Legislation, Codes and Standards	SFPUC, Grants from state and federal agencies (e.g. CEC, DOE) and foundations, Project financing with manufacturer or developer, debt financing authorized through Proposition B and H, private financing, grants and loans from state and federal		**1.** Develop Renewable Energy Projects - Solar Energy, Wind Energy & Biomass Energy; **2.** Conduct Pilot Projects for Emerging Technologies; **3.** Support and Develop Green Power Purchasing	SF Environment, SFPUC, City Attorney, PG&E, Department of Environment (SF Environment), Planning Department, Department of Building Inspection		Decreased demand (kilowatts) and energy use (kilowatt-hours, therms); Increased program participation rates, Number of Website hits and hotline contacts, Number of participants trained, Increased energy generated by

City/ County	Setting Quantifiable Goals	Plan Specific Quantifiable Measures	Funding Sources Identified	Milestones	Renewable Goals	Responsible Entity	Implement-ation Process Established	Performance Indicators
			agencies, Utility ratepayers, California Energy Commission, U.S. Department of Energy, U.S. EPA					renewable resources (kilowatt-hours), Completed demonstration projects, Feasibility study findings and recommendations, Megawatt-hours of renewable energy purchased
San Rafael	Reduce GHG emissions 15% from current levels by 2020	**1.** Mandatory Green Building Ordinance; **2.** LED Traffic Lights; **3.** Apply green building requirements to residential, commercial and civic remodeling projects, new construction; **4.** Require energy efficiency audits for both businesses and residences during major remodeling; **5**. Evaluate the replacement of incandescent and mercury vapor street and parking lot lighting with energy efficient LED lights; **6.** Consider creation of an assessment district bond financing program to fund installation of renewable energy systems and other						

City/ County	Setting Quantifiable Goals	Plan Specific Quantifiable Measures	Funding Sources Identified	Milestones	Renewable Goals	Responsible Entity	Implement-ation Process Established	Performance Indicators
		efficiency upgrades; **7**. Support efforts of Marin Energy Authority to increase the proportion of renewable power offered to residents and businesses and to provide financial and technical assistance for energy efficiency upgrades; **8.** Adopt zoning allowances for residential wind power generators and for location of solar collectors.						
Sonoma County	Reduce GHG emissions 25% below 1990 levels by 2015	**1.** Maximize energy efficiency throughout County; **2.** Replace natural gas and propane space and water heating with electric heat pumps and solar hot water heaters; **3.** Replace natural gas and propane space and water heating with electric heat pumps and solar hot water heaters; **4.** Institute a mandatory green building ordinance throughout Sonoma County; **5.** Improve efficiency of pumping operations for water and wastewater, and improve distributed generation and energy efficiency at wastewater treatment facilities; **6.** Track	Community Choice Aggregation (CCA), AB811 (Financing Initiative for Renewable and Solar Technology), Tariffed (utility-based) On-Bill Efficiency Purchase, Leasing and Power or Efficiency Purchase Agreements, Community Facilities District Funding, Green Mortgage Options	**1.** Efficiency retrofits for building envelopes — the goal in the Plan is to retrofit 80 percent of the County's homes and commercial spaces; **2.** Sonoma Energy Agency (SEA) — SEA can provide low-cost financing by using ratepayer revenue to secure and pay back municipal				

City/ County	Setting Quantifiable Goals	Plan Specific Quantifiable Measures	Funding Sources Identified	Milestones	Renewable Goals	Responsible Entity	Implement- ation Process Established	Performance Indicators
		progress and issue an annual report card on the amount of GHG emissions reduced in the Electricity and Natural Gas Sector in Sonoma County; 7. Switch electricity generation from fossil fuel to renewable sources		revenue bonds.				

**Appendix E – CEESP Community Capacity
Self Assessment Tool**
SAIC and Innovologie

CEESP Community Capacity Self-Assessment Tool

The table below is a tool to help a local government or community program assess its own capacity for achieving the goals of the California Long Term Energy Efficiency Strategic Plan (CEESP). The table is designed to help understand the capacity that the community has built to date to sustain energy efficiency, including related sustainability activities. By completing the table, a community may establish its baseline capacity. The baseline assessment also serves as a checklist to help identify next steps. Repeating the process at a later date would provide documentation of capacity building progress over time.

Instructions

In the table below, each section represents a key component of community capacity. To complete the table, assess each component and fill in the empty box at the right side of each row. For major sections (A-J), assign a number rating (1-5) that best applies according to the rating definitions provided. For subsections (e.g., A-1, B-4.1), answer with one of the following four responses: Yes, No, Don't Know, or Planned. You may want to also consider non-LGP activities (e.g., community solar) to evaluate the capacity efforts of the community as a whole.

Community Capacity Self-Assessment Tool

	Activities and Outputs that Reflect an Organization's Capacity	Rating (1-5) for Major Sections (A-J) and Yes/No/Unknown/ Planned for Subsections (A-1)
A	**Promote/develop community partnership concept**	
	Rating: 1 = Fully developed concept with community buy-in; 2 = Fully developed concept but lacking community buy-in; 3 = Partially developed concept; 4 = Champion and beginning conceptual development; 5 = No activity.	
		Yes/No
A-1	•Contact with policy makers/ Champions	
A-2	•Needs assessment	
A-3	•Budget	
B	**Partnership infrastructure development**	
	Rating: 1 = Fully developed infrastructure; 2 = Infrastructure but lacking community (non-governmental) partners; 3 = Infrastructure but lacking local plan and policies; 4 = Infrastructure lacks adequate funding to meet program goals; 5 = No infrastructure developed.	
		Yes/No
B-1	•Policy body approval	
B-2	•Local partnership manager identified	
B-3	•Plans developed	
B-4	•Goals and timelines:	
B-4.1	Capacity building	
B-4.2	Behavioral	
B-4.3	Technical	
B-5	•Resources allocated	
B-6	•IOU contracts	
B-7	•Staff allocated	
B-8	•Internal and external partners identified	
B-9	•Training developed	
B-9.1	Technical	
B-9.2	Community leadership	
B-10	•Branding created	
B-11	•Demonstrations developed	
B-12	•Implementation plans and strategies developed	

C	**Local government networking, communication, and awareness**	
	Rating: **1** = Local government networks well established with internal and external (i.e., non-IOU business partners); **2** = Local government networks well established internally but only partially externally; **3** = Local government networks established internally but lacking external business and community partners; **4** = Local government networks partially established internally (e.g., lack of knowledge among political leaders and within key departments), but lacking external business and community partners; **5** = Limited or no local government network (e.g., program operated by one individual working with third parties or a third party operating the program without an in-place network).	
		Yes/No
	Internal	
C-1	•Political support	
C-2	•Linkages to other departments	
	External	
C-3	•Links to IOU managers coordinated	
C-4	•Linkages to community groups and organizations developed	
C-5	•Linkages to businesses working in community (e.g., public-private partnerships)	
C-6	•Linkages to local trade allies	
C-7	•Coordination with other communities and sustainability groups	
C-8	•Resources from other organizations such as foundations	
D	**Community awareness outreach activities**	
	Rating: **1** = Robust activities both internal and external; **2** = Strong activities both internally and externally but no coherent and effective branding; **3** = Limited external activities, such as no community events program (e.g., but may have had events on occasion), and lack of mobilization of community groups to take volunteer actions; **4** = No external activities; **5** = No or limited internal or external program (e.g., program operated by one individual working with third parties or a third party operating the program without a communication program in-place).	
		Yes/No
	Internal	
D-1	•One-to-one contacts with policy makers, executives, division heads, etc.	
D-2	•News letters, internal e-mail blasts	
D-3	•Word-of-mouth	
	External	
D-4	•Community government broadcast methods	
D-4.1	Community television	
D-4.2	Newsletters (print or electronic)	
D-4.3	Library displays and presentations	
D-5	•Community events	
D-5.1	Fairs	
D-5.2	Public meetings	
D-5.3	Presentations to civic organizations	
D-6	•Mobilization of community groups:	
D-6.1	Voluntary organizations	
D-6.2	Others	
D-7	•Local media stories and advertising	
D-8	•Word-of-mouth	
D-9	•Brand promotion	
E	**Policy initiatives**	
	Rating: **1** = Fully developed and implemented policy, budget and financing tools; **2** = Fully developed and implemented initiatives, but lacking financing; **3** = Partially developed policy system (e.g., planning standards but without implementing ordinances); **4** = Initial policy system developed (e.g., policies or plans but without ordinances); **5** = No or limited policy foundation (e.g., a board resolution but lacking other steps).	
		Yes/No
E-1	•Ordinances	
E-2	•Codes and standards	
E-3	•Planning standards	
E-4	•Zoning plans	
E-5	•Budget allocations	
E-6	•Executive orders	
E-7	•Regional and state ventures	
E-8	•Financing alternatives	

		Yes/No
F	**Training, education and demonstration**	
	Rating: 1 = Widespread staff and external participant training; 2 = Widespread staff training and some external training; 3 = Training limited to a key staff; 4 = Occasional but inadequate training; 5 = No formal training plan or program (e.g., training is ad hoc or at participants own initiative).	
		Yes/No
F-1	•Staff participants	
F-2	•Volunteers/Participants in education activities	
F-3	•Observation of demonstrations	
G	**Implementation activities**	
	Rating: 1 = Implementation of a broad efficiency program covering all or most aspects and causing lasting behavior change; 2 = Implementation of a rigorous program but not causing lasting behavioral and cultural changes; 3 = Auditing and implementation within residential and commercial sectors; 4 = Limited programs to install or incentivize energy measures; 5 = Weak or no implementation activities.	
		Yes/No
G-1	•Audits	
G-2	•Recommended measures	
G-3	•Incentivized measures	
G-4	•Measures installed directly	
G-4.1	Public buildings	
G-4.2	Residential buildings	
G-4.3	Commercial buildings	
G-4.4	Institutional Buildings	
G-5	•Measures installed indirectly	
G-5.1	Public buildings	
G-5.2	Residential buildings	
G-5.3	Commercial buildings	
G-5.4	Institutional Buildings	
G-6	•Direct behavioral and cultural changes	
G-6.1	Government employees	
G-6.2	Residents	
G-6.3	Trade Allies	
G-6.4	Businesses	
G-6.5	Industries	
G-6.6	Institutions	
G-7	•Door-to-door no cost low cost	
G-8	•Activities directed to businesses & households	
G-9	•Code enforcement	
G-10	•Incentivize projects that voluntarily exceed state & local standards	
H	**Measurements**	
	Rating: 1 = Strong measurement (e.g., established metrics, actions verified and results monitored annually); 3 = Periodic measurement (e.g., established metrics, actions verified and results monitored periodically); 5 = Occasional or no measurement (e.g., established metrics, actions verified and results monitored periodically).	
H-1	•Actions verified	
H-2	•Results monitored	
I	**Evaluation, Reporting and Continuous Improvement**	
	Rating: 1 = Strong evaluation and continuous improvement (e.g., annual evaluations and reporting, active management structure and meetings, continuously refining and reengineering the strategy and operations); 3 = Periodic evaluation/continuous improvement process; 5 = Occasional or no evaluations or continuous improvement.	
I-1	•Evaluations completed	
I-2	•Reports produced	
J	**Overall Rating - Please rate this program from 1-5 in capacity for long-term energy programs**	

Appendix F –
California Long-term Energy Efficiency Strategic Plan,
Local Government Chapter Goals

Goal 1: "Reach" Codes

Implementation Plan and Timeline			
Strategies	**Near Term** **2009 – 2011**	**Mid Term** **2012 – 2015**	**Long Term** **2016 – 2020**
1-1: Develop, adopt and implement model building energy codes (and/or other green codes) more stringent than Title 24's requirements, on both a mandatory and voluntary basis; adopt one or two additional tiers of increasing stringency.	• Develop model codes and tiers in conjunction with existing energy and green building rating systems. • Gain consensus of leading designers and builders on "reach" levels • Launch statewide campaign for adoption	• Expand percent of cities and counties adopting codes; monitor effectiveness and upgrade model codes.	• Expand to statewide program.
1-2: Establish expedited permitting and entitlement approval processes, fee structures and other incentives for green buildings and other above-code developments.	• Develop sample programs • Enact needed local laws; • Put implementing processes, fee structures, and other incentives in place statewide by 12/2011.	• Ongoing improvement and refinement.	• Ongoing improvement and refinement.
1-3: Develop, adopt and implement model point-of-sale and other point-of transactions relying on building ratings to increase efficiency in existing buildings.	• Develop model codes and programs in 2009. • Launch pilot programs in 2010.	• Implement statewide building energy ratings disclosure system by 6/2012.	• Implement requirements beyond disclosure, such as ratings and/or energy upgrades at sale of properties by 1/2013.
1-4: Create assessment districts or other mechanisms so property owners can fund EE through local bonds and pay back on property taxes; develop other local EE financing tools.	• Develop model mechanisms for funding sources. • Establish model loan mechanisms. • Launch in pilot cities.	• Expand percent of cities and counties adopting local financing mechanisms.	• Expand statewide
1-5: Develop broad education program and peer-to-peer support to local govt's to adopt and implement model "reach" codes and/or point of sale policies.	• Fund statewide energy efficiency liaison to local gov't associations • Develop information campaign on mechanics and benefits of model programs, targeting local gov't decision-makers and community leaders. • Establish leadership recognition programs.	• Expand content and geographical reach of information campaign.	• Ongoing
1-6: Link emission reductions from "reach" codes and similar programs to CARB's AB 32 program and to local gov't CEQA responsibilities.	• CARB adopts regulation providing local gov't emission reduction credit for "reach" standards • State Attorney General and Office of Planning & Research provide guidance on using CEQA authority to target energy and GHG savings in LG development authority	• Identify best practices and incorporate into local programs and policies	• Ongoing
1-7: Develop energy efficiency-related "carrots" and "sticks" using local zoning and development authority.	• Plan approaches by 12/2009. Launch approaches by 12/2010. • Approach in place by 6/2009. Requirement in place by 12/2010.	• Ongoing refinement of approaches based on feedback from implementation efforts.	• Ongoing implementation

Goal 2: Code Compliance

Implementation Plan and Timeline			
Strategies	**Near Term** **2009 – 2011**	**Mid Term** **2012 – 2015**	**Long Term** **2016 – 2020**
2-1: Statewide assessment of local government code enforcement and recommendations for change.	• Develop and conduct assessment; develop set of recommended improvements (e.g. via compliance tools, information, training, modified standards, and/or funding)	• Ongoing	• Ongoing
2-2: Dramatically improve compliance with and enforcement of Title 24, including HVAC permitting and inspection requirements (including focus on peak load reductions in inland areas).	• Develop strategies • Test pilot programs in 2010; • Put initial improvements in place statewide by 12/2010.	• Expand statewide • Strengthen compliance solutions	• Ongoing
2-3: Local inspectors and contractors hired by local governments shall meet the requirements of the energy component of their professional licensing (as such energy components are adopted).	• Update and/or incorporate energy components in licensing requirements. • Adopt requirements	• Ongoing	• Ongoing

Goal 3: Lead by Example

Implementation Plan and Timeline			
Strategies	**Near Term** **2009 – 2011**	**Mid Term** **2012 – 2015**	**Long Term** **2016 – 2020**
3-1: Adopt specific goals for efficiency of local new and existing government buildings.	• Showcase innovative EE and other DSM relevant to achieving ZNE buildings. • Implement local policies for LEED new construction and existing buildings.	• Complete benchmarking and LEED policy implementation. • Launch statewide program.	• Implement statewide.
3-2: Require commissioning for new buildings, and re-commissioning and retro-commissioning of existing buildings.	• Benchmark existing buildings against ratings such as Energy Star and its Portfolio Manager • Test commissioning programs on selected high-use buildings. • Adopt mandatory benchmarking and commissioning requirements for local government facilities statewide by 12/2011.	• Ongoing refinement and improvement.	• Ongoing
3-3: Improve access to favorable financing terms that create positive cash flow from energy efficiency/DSM savings,	• Identify various financing tools available to local governments. (e.g. such as expanding the Energy Commission's loan fund, seeking federal or state support for lower interest rate loans, third-party financing, and utility on-bill financing. • Modify as appropriate to increase utilization.	• Ongoing implementation.	• Ongoing
3-4: Promote local gov't adoption of policies for a budget line item fir energy management or other options that allow energy efficiency cost savings to be returned to the host facility or department and/or as a revolving fund for additional energy projects	• Explore and document model policies and mechanisms complete by 12/2009. • Implementation plan in place by 6/2010 for mechanisms warranted.	• Ongoing implementation.	• Ongoing
3-5: Develop an innovation incubator that competitively selects energy design, technology, and system initiatives for local government pilot projects.	• Coordinate this approach with Research & Technology activities; • Develop and begin first projects by 12/2009.	• Ongoing refinement and expansion.	• Ongoing

Goal 4: Community Leadership

Implementation Plan and Timeline			
Strategies	**Near Term** **2009 – 2011**	**Mid Term** **2012 – 2015**	**Long Term** **2016 – 2020**
4-1: Local governments commit to clean energy/climate change leadership.	• Assist initial set of local governments in commitments; develop and communicate appropriate messages.	• Expand local government participation statewide.	• Ongoing implementation.
4-2: Use local governments' general plan to promote energy efficiency, sustainability and climate change.	• Develop model General Plan amendments. • Leaders among local governments adopt policies in General Plan elements. • Publicize to other local governments.	• Expand inclusion in general plans. By 2015, inclusion in all local gov't plans.	• Ongoing implementation.
4-3: Statewide liaison to assist local governments in energy efficiency, sustainability, and climate change programs	• Provide energy efficiency liaison funded via IOU ratepayer funds. • Provide climate change liaison as part of ARB AB32 activities.	• Ongoing implementation.	• Ongoing implementation.
4-4: Develop local projects that integrate energy efficiency, DSM, and water/wastewater end uses.	• Identify opportunities and challenges for more energy/environmentally integrated development and infrastructure • Develop and implement pilot projects, such as the California Sustainable Communities Initiative.	• Expand implementation.	• Ongoing implementation

Goal 5: Local Government Energy Efficiency Expertise

Implementation Plan and Timeline			
Strategies	**Near Term** **2009 – 2011**	**Short Term** **2012 – 2015**	**Long Term** **2016 – 2020**
5-1: Create a menu of products, services, approved technologies and implementation channels to guide local governments that currently lack deep expertise in energy efficiency.	• Identify menu by 9/2009. • Plan for provision of menu in place by 12/2009. • Begin to provide menu content by 3/2010.	• Ongoing implementation.	• Ongoing implementation.
5-2: Develop model approaches to assist local governments participating in regional coordinated efforts for energy efficiency, DSM, renewables, green buildings, and zoning.	• Complete model approaches (e.g. joint powers authorities, memoranda of understanding, regional councils) by 2009. • Leader governments begin pilots. • Communicate information on a peer-to-peer basis.	• Expand outreach on benefits of regional approaches to wider range of local governments • Identify funding sources to support wider utilization.	• Ongoing implementation.
5-3: Establish a statewide effort to facilitate peer-to-peer learning, such as a "local champions" program or a governor's invitation-only local government leaders' summit.	• Identify the most suitable peer-to-peer learning vehicle by 6/2009. • Launch peer-to-peer learning vehicle by 12/2009.	• Ongoing refinement and improvement.	• Ongoing implementation.
5-4: Create a statewide technical assistance program for local governments, including peer-to-peer expertise exchange.	• Develop program in 2009.	• Implement statewide in 2010.	• Ongoing implementation.

Appendix G –
Comparison of Planning Mechanisms for Energy Action Leverage Points

Comparison of Planning Mechanisms
for Energy Action Leverage Points

Mechanism	Description	Leverage Points For Energy Initiatives	Examples
General Plan	• Set of long-term goals and policies that the community uses to guide future development and land use decisions. • Implemented through zoning ordinances, specific plans, and subdivision maps all of which must be consistent with the general plan.	Set priorities for energy and related issues in community overall and specifically in the building intensity or density, siting of energy infrastructure facilities (e.g., power plants) siting of utilities, enforcement of building code, capital improvement programs, etc. Provides stronger legal authority for green building, climate mitigation and other implementing actions.	Pleasanton General Plan – Energy Element Humboldt County General Plan Update – Energy Element (in progress) Kern County General Plan – Energy Element
Zoning	Regulates the distribution and conditions for use of residential, commercial, industrial, and other land use based on the general plan.	Local building energy ordinances and green building ordinances are part of the zoning regulations. These ordinances must be complied to obtain a building permit and are enforceable.	Marin County Energy Efficiency Ordinance Palm Desert Municipal Code Energy Efficiency Standards Santa Rosa Energy Efficiency Ordinance Rohnert Park Green Building Ordinance West Hollywood Green Building Ordinance
Specific Plan	• Describes allowable land uses, identify open space, and detail infrastructure availability and financing for a specific area. • Specific plans offer opportunities for integrated, whole systems planning and development because they can combine detailed development plans with environmental, transportation, recreational, and other provisions.30	Provide opportunities for integration of multiple goals with the development and give planners and developers the flexibility to be more innovative in their design of buildings and energy generation.	Roseville – Creekview Specific Plan Treasure Island Sustainability Plan

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30 Planners Guide to Specific Plans. California Office of Planning and Research. (2001).

Mechanism	Description	Leverage Points For Energy Initiatives	Examples
Energy Plans	• A voluntary planning tool that provides an action plan for meeting energy needs. The definition of an Energy Plan has not been provided by any specific regulation agency. Some definitions include: • A compilation of many of the issues that could be addressed in the various general plan elements into a comprehensive, cohesive document. 31 • A means for reviewing and evaluating community design options for a more efficient and sustainable use of energy. It may include actions to conserve energy and use energy more efficiently, while also developing renewable resources in order to reduce the environmental impacts of energy use.32	Many leverage points – entire plan is focused on energy so allows for high level as well as very specific energy initiatives across procurement, generation, distribution, construction, and efficiency.	SDG&E Regional Energy Plan Irvine Energy Plan
Sustainability Plan	• A voluntary planning tool to achieve a sustainable state for a community. While there is no specific definition in State law, it is generally a plan of action for achieving sustainability, that is, economic progress, environmental protection, and social equity over the long-term. • Often set performance measures that are monitored and reported upon.	• When identifying environmental improvements, plans focus on impacts such as energy consumption • Provides a "blank page" for defining energy initiatives for the city. • Offers opportunities for innovation because of the broad scope and need to integrate economic (e.g., job creation) and environmental objectives.	Marin Sustainability Plan San Francisco Sustainability Plan Sacramento Sustainability – Master Plan and General Plan Santa Monica Sustainability City Plan

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[31] Energy in General Plans and Local Ordinances. Kammerer, K.J (2003).
[32] Oregon Department of Energy Community Energy Planning Tool. (2008).

Mechanism	Description	Leverage Points For Energy Initiatives	Examples
Climate Action Plan (CAP)	Voluntary planning tool to identify approaches unique to their community to achieve greenhouse gas (GHG) emission reductions. Key components include calculating a baseline GHG emission inventory to use to identify which sources contribute the greatest to local emissions and prioritize strategies for reducing GHG emissions.	• Transportation and building energy use are generally the largest GHG emissions sources and are therefore addressed in detail in most climate action plans. • May include specific energy actions. • Visible, public process that requires monitoring and reporting offer to third parties.	Berkeley Climate Action Plan Los Angeles Green LA Plan San Diego Climate Protection Action Plan Seattle Climate Action Plan Chicago Climate Action Plan

Appendix H –
Local Government Interview Guide

LGP Interview Guide

Name_____

Organization_____

Date_____

Phone_____**Fax**_____

Email_____

Interviewer _____

We have been asked by the California Public Utilities Commission (CPUC) to talk with local government officials about their energy and related policies and programs. Our main goal is to better understand your opportunities and challenges to develop sustainable energy programs in your community. We also would like to find out what needs your program may have that would assist further developing it in the next few years.

1) Respondent Background

    a) What is your current title?
    b) Could you very briefly describe your duties and responsibilities?
    c) How long have you been in your current position? _____ Years
    d) How long have you been doing this kind of work? _____ Years

2) Community Priorities

Local governments have a lot on their plates: infrastructure development and maintenance, economic development, planning, education, water, environmental efforts, climate change, and energy efficiency to name just a few issues.

    a) Thinking about the priority of these issues, would you place your community's energy efficiency efforts near the top, middle or bottom of the list?
      i) Why?
    b) Over the next five years, given the press of issues facing local government business, do you see the priority for energy efficiency within your community moving up, staying the same or moving down the priority list?
      i) Can you explain?
    c) What about five years and beyond, do you see the priority of energy efficiency moving up, staying the same or moving down the priority list?
    d) What kinds of things can cause the priority for energy efficiency to change? Please explain.

3) Internal Energy Efficiency Initiatives

a) With respect to the following, has your city/county undertaken or is it planning to undertake any of the following energy efficiency activities:
   i)   ❑   Benchmark and measure building energy performance?
   ii) ❑   Audit government buildings?
   iii) ❑   Prioritize government buildings for efficiency upgrades (e.g., lighting, chillers, motors, street lights)?
   iv) ❑   Require new local government buildings to meet LEED or some other standard?
   v)   ❑   Retro commission existing buildings?
   vi) ❑   Centralize utility billing?
   vii) ❑   Install or use a central energy management system for buildings?
   viii)❑   Regularly monitor energy use in government buildings using billing data or an electronic system?
   ix) ❑   Improve the efficiency of water and sewer pumping systems?
   x)   ❑   Establish an energy efficient purchasing policy?
   xi) ❑   Other efficiency activities, including demand response?

b) For each of the above items that is checked ask:
   i)   When was this first initiated or done?
   ii)   What is a brief history of this activity and why did the community decide to do it?
   iii) Where did your community get information about this activity?
   iv)   How was the activity implemented? Can you give me or are there details available?
   v)   How is it linked to other parts of local government?
   vi)   Who is responsible for the activity?
   vii) How is it funded? Is it likely to continue to be funded in the future? By whom?
   viii) What are the (expected) results?
   ix)   What parts of this activity have worked well and not so well? Please explain?
   x)   How would you modify this activity?
   xi)   Is the activity likely to be extended into the future?
   xii) If other communities wanted to try this what would you recommend?

4) Title 24

a) Can you briefly describe how your community is enforcing Title 24?
b) What, if anything, did your community do to get its building code compliance staff ready to enforce title 24?
c) How effective do you think your current efforts are with respect to consistently and effectively enforcing Title 24?
d) What makes enforcing Title 24 difficult? (
e) What are you doing that has proven effective?

 f) What if anything more do you think you should be doing to enforce Title 24?

 g) How are current Title 24 activities being funded? Is this sustainable?

 h) What additional resources are needed to enforce Title 24, including training, other technical assistance and funding?

 i) What are you doing that might be different than what other communities are doing?

 j) What would you recommend to other communities?

5) Advanced Energy Codes

Some communities are interested in or are adopting stronger energy codes that exceed Title 24.

 a) Has your community discussed, considered, or implemented advanced building codes such as requiring LEED or other standards for residential, commercial, or industrial structures?

  i) If so, what is or was the process that your community followed to adopt this ordinance?

   (1) What standard(s) has/have been discussed and/or implemented?

   (2) What motivated the community to do this?

   (3) What is your community hoping to achieve with the new standards (e.g., capturing savings, helping to green your community)?

   (4) Where did you get information about this/these types of standards?

   (5) How (is the) did the implementation (expected) process work?

   (6) Could you provide more detail about the various options that have been discussed and/or implemented? What carrots or sticks may be being considered?

   (7) How is the process (to be) funded? Is the funding process sustainable? What are/were the issues or points of contention with respect to implementing these options in your community?

   (8) How successful do you think the standard is or will be in achieving the community's goals? Why?

   (9) In the future, do you see obstacles to implementing, enforcing, or advancing the energy codes further?

   (10) If other communities wanted to try something similar what would you recommend?

  ii) If no, do you think there would be interest in adopting codes that exceed Title 24? Can you explain?

  iii) If your community has not discussed, considered, or implemented advanced codes, is there some reason?

6) Financial Incentives

Some communities are providing financial "incentives" such as direct incentives (e.g. grants or subsidies), or tax credits, taxing district financing, and loans to encourage residents and firms to pursue energy efficiency or renewable energy.

a) Has your community considered or implemented any such financial incentives?
   i) If so, which types of incentives?
   ii) To what extent are the incentives being considered feasible for local government to provide?
      (1) Where did your community get information about the incentive(s)?
      (2) Did you do any kind of assessment of the need for these incentives? If yes, please explain?
      (3) How did your community decide on the incentive(s), including the process and how obstacles to passage were overcome?
      (4) When were they implemented?
      (5) How is it/are they implemented? How is it/are they enforced?
      (6) Since they were implemented, how often has/have the incentive(s) been used?
      (7) What has the response to the incentive been from builders, homeowners, local officials, and others?
      (8) How effective do you think it is/they are/will be?
      (9) How is the incentive funded? Is this sustainable?
      (10) If other communities wanted to try this what would you recommend?

b) If not, could you see your community using these types of incentives to encourage efficiency or sustainability? Why or why not?

7) Alternative Incentives for Efficiency

Some communities have tried various other types of incentives to encourage efficient buildings (e.g., as an alternative to requiring a more rigorous building code) such as building fee waivers, permit streamlining, higher density standards, parking waivers, etc?

a) Has your community considered or implemented any of these?
b) If so, which incentives?
   i) Where did your community get information about the incentive(s)?
   ii) How did your community decide on the incentive(s)?
   iii) How is it/are they implemented (e.g., mechanism(s) used)? How is compliance assured, including enforcement activities?
   iv) How frequently has/have the incentive(s) been used?
   v) What are/were the issues or points of contention with respect to implementing these options in your community?

vi)   How have various stakeholders (builders, developers, real estate firms, environmental organizations) responded to these incentives? In the long run how successful do you think these incentives will be? Why?

vii) How are the incentives funded or sustained? Is that likely to continue into the future?

viii) Will the incentive be sustained in the long run and what will it take to do that?

ix)   If other communities wanted to try this what would you recommend?

c) If not, could you see your community using these types of incentives to encourage efficiency or sustainability? Why or why not?

8) Existing Buildings

Some communities are now trying to improve the efficiency of existing residential and commercial building stock by using various types of mechanisms including point-of-sale ordinances that require upgrades when buildings change hands and/or require efficiency upgrades when major systems such as HVAC systems are replaced.

a) Has your community considered or implemented any of these?
   i)   If so, what mechanisms are being considered/used?
       (1)   Where did your community get information about such mechanism(s)?
       (2)   How is/did your community decide on the mechanism(s)?
       (3)   How is it (to be) implemented?
       (4)   How is the efficiency of the building(s) (to be) assessed?
       (5)   How is compliance (to be) enforced?
       (6)   How often has/have the mechanism(s) been used?
       (7)   How is the mechanism funded?
       (8)   What is the (expected) response to the mechanism?
       (9)   What implementation difficulties are there?
       (10) How are these difficulties being addressed?
       (11) How supportive have other elements of the community been (homeowners, real estate brokers, bankers, home energy raters, etc.)?
       (12) Does this appear to be sustainable in the long term?
       (13) Is your agency measuring savings? If so, how are you doing or proposing to do this?
       (14) If other communities wanted to try this what would you recommend?
   ii)   If not, could you see your community using this type of mechanism to encourage efficiency or sustainability? Why or why not?

9) Efficiency Subdivisions, Redevelopment Districts, Zero Energy Communities

A number of communities around the country now have or are discussing/legislating energy efficient, solar, or zero-energy subdivisions or development districts.

a) Has your community or a developer in your community considered or implemented any of these or anything like these?

b) If so, can you describe the initiative?
   i)   Was this a proposal from a developer, a community group, the result of a community initiative, or some combination?
   ii)   What motivated your community to do this?
   iii)   Where did your community get information about such mechanism(s)?
   iv)   What mechanisms (e.g., specific plans, redevelopment agreements, subdivision maps, developer agreements, CEQA mitigation measures, etc) were used to implement this?
   v)   How is this (to be) being implemented?
   vi)   How often has/have the mechanism(s) been used?
   vii)   If limited to a portion of the community, do you expect this to be replicated in other developments/areas? If so, how soon? How broadly?
   viii) How supportive have other elements of the community been (developers, builders, real estate brokers, bankers, home energy raters, etc.)? Could you describe the support or resistance?
   ix)   What implementation difficulties are there?
   x)   How are these difficulties being addressed?
   xi)   How was the initiative funded?
   xii)   If other communities wanted to try this what would you recommend?
c) If not, could you see your community trying this in the future? How soon? Why or why not?

10) Priority Needs for Energy Efficiency?

a) What is the likelihood of your community taking a more active role in promoting energy efficiency in both new construction and retrofits?
b) What are the priority needs (e.g., financial, staff resources and expertise) to allow your community to take a more active role in energy efficiency?
c) What types of resources and training are needed?
d) What might be the best methods for meeting these needs? Peer-to-peer training working through established organizations such as the utilities, ICLEI, LGC, and others?
e) Which organizations might best fulfill different roles?
f) What regional coordination or cooperation is taking place? How is your community involved? How is it being implemented? How are stakeholders being engaged?
g) What regional coordination or cooperation needs do you have or would like?
h) What type of regional support, if any, is your community providing or would be willing to offer?
i) Overall, what conditions need to exist before your community will take a more active role in promoting energy efficiency?

11) Planning and Development?

a) We understand that your community has incorporated or is working on incorporating energy into your general plan.

i)   Is energy a separate element or incorporated into other elements or both?
ii)   Who was responsible for developing the energy element(s) (including external partners)?
iii)   On what are the energy elements of the plan focused, internal operations and facilities, community development, or motivating or requiring residents and firms to be more energy efficient?
iv)   What difficulties have been encountered in developing the plans?
v)   How are these difficulties being addressed?
vi)   What does you community see as the benefits?

b) We understand that your community has developed or is working on adopting energy and or resource (e.g., energy, **water, waste, transportation**) action plans.
   i)   How are you doing this?
   ii)   How is the process working?
   iii)   Can you share some of the details of the action plans?
   iv)   What difficulties have been encountered in doing this?
   v)   How are these difficulties being addressed?
   vi)   What are the benefits?
   vii)   What assistance have you received from utility partners, or others?
   viii)   Please tell us how this assistance has helped you, if at all?
   ix)   How, if at all, could the type of assistance been more helpful?
   x)   How does the plan link to other documents such as energy codes, specific plans and other mechanisms?

c) We understand that your community is developing or has adopted climate action plans or policies.
   i)   Can you describe the basic scope of these plans?
   ii)   How did these efforts get started?
   iii)   What motivated you to do this?
   iv)   Who are the key players and how have the key players changed since the effort was first initiated?
   v)   From where has support and opposition to the plans come?
   vi)   What goals have been established or are anticipated to be established?
   vii)   What funding sources are being used?
   viii)   How is energy efficiency and renewable energy being incorporated into these policies and plans, if at all?
   ix)   What are the implementation strategies?
   x)   What parts of the plans are already being implemented and how are those efforts proceeding?
   xi)   What difficulties have been encountered in developing the plans?
   xii)   How are these difficulties being addressed?
   xiii)   How does the plan link to other documents such as energy codes, specific plans and other mechanisms?
   xiv)   What are the benefits and the disbenefits of integrating climate action, energy action and planning mechanisms from your perspective?

d) Management and Metrics
  i)   What intermediate goals has the community set such as a timetable for auditing buildings, and funding and installing of measures, creating awareness and interest among local residents and firms?
  ii) What longer term energy savings or renewable energy generation goals have you set?
  iii) Whose goals are these and are there consequences for missing them?
  iv) How do these goals relate to your general, energy plan or other mechanisms?
  v)   What plans does your agency have to benchmark, track and measure progress to achieve those goals under each of the programs you have discussed today?
  vi) What indicators do you use or are considering for measuring progress for these programs?
  vii) What, if any, mechanisms are in place to update, or adjust the goals and associated plans?

e) Planning Integration
  i)   To what degree are general plans, energy actions plans, climate plans, and metrics setting a coordinated, integrated process?
  ii) To what extent could there be greater integration?
  iii) If you could start with a blank slate, how would you approach these planning activities and how would you recommend that other agencies do this?

f) Program Resilience
  i)   What energy related current capacity/infrastructure in your local government is now a permanent part of your standard day to day operations?
  ii) How resilient (on a scale from 1-5) is this capacity in the face of state and local funding constraints, the local economic situation, institutional and political considerations?
  iii) For activities that require a sustained budget, please comment on sources of funding other than general revenue funding that could realistically be developed over the next three to five years (e.g., developer fees, assessment districts)?

**Appendix I –
Local Government Partnership Interviewee and Topics Covered**

Organization	Name	Title	Focus
City and County of San Francisco	Cal Broomhead	Energy and Climate Programs Manager	All except code compliance
	Ann Kelly		
City of Chula Vista	Steve Castenatas	Councilman	Policy and political direction
	Lou El-Khazen	Building Official	Enforcement and reach codes
	Michael Meacham	LGP Manager, City Sustainability and Energy, Director	All except code compliance
City of Fulterton			Planning and climate
City of Irvine	Chandra Kraut	Consultant	Planning and climate
City of Pleasanton	Janice Stern	Sr. Planner	Planning and climate
	Robin Giffin	Associate Planner	
City of Portland	Alisa Kane	Green Building Manager	Reach codes, planning, zero net energy, etc.
	David Tooze	Renewables Manager	
City of Rohnert Park	Ron Bendorf	Director of planning	Planning and climate
City of Rohnert Park	Peter Bruck	Building Official	Enforcement and reach codes
City of Salinas	Mike Stone	Building Official	
City of San Diego	Linda Pratt	LGP Manager; Sust. and Energy	All except code compliance
City of San Jose	Mary Tucker	Energy Programs Manager	All except code compliance and planning. Focused on regional approaches
City of San Leandro	William Schock	Building Official	enforcement and reach codes
City of San Rafael	Robert Brown	Director of Community Development	Planning and climate
City of Santa Barbara	George Estrella	Building Official	Enforcement and reach codes
City of Santa Rosa	Michael Whitaker	Building Official	Enforcement and reach codes
County of Marin	Charles McGlashan	County Supervisor	Policy and political direction. Also interviewed energy manager and covered financing and green building codes
County of Sonoma	John Haig	LGP Manager; County Sust. and Energy Mgr.	All except code compliance
City of Merced	David Gonzalvas	Building Official	Code compliance, etc.
City of Palm Desert	Patrick Conlon	Energy Manager	Case only: financing, and green building
Roseville Electric	Tom Habashi	Utility Dept Director	All except code compliance
Sacramento Municipal Utility District	Wade Hughes	Green Building Managers; Residential and Commercial	Relationship and tech assist to cities
Stopwaste.org\Alameda County Source Reduction & Recycling Board	Gary Wolf	Executive Director	Integrated energy, water and waste programs

Other California local governments not formally interviewed but contacted by phone or email include: City of Berkley, City of Oakland, City of Santa Cruz, City of San Luis Obispo, County of Los Angeles, City of Stockton and County of Riverside.

Transmittal Letter for the Local Government Strategic Energy Action Report

Prepared by the
California Public Utilities Commission
Energy Division

The California Public Utilities Commission (CPUC) hired Navigant Consulting (formerly Summit Blue LLC) as well as SAIC and Innovologie to conduct a study of local government implementation of energy efficiency policies and practices represented in the local government chapter of the California Long-term Energy Efficiency Strategic Plan, adopted in September of 2008.

The CPUC recognized the leadership role of local governments in reducing energy use and global warming emissions in California. The CPUC wanted to better understand the barriers local governments face in pursuing energy efficiency policies and practices, ways to overcome those barriers, as well as the successes and exemplary practices of local government leaders in this regard. The CPUC hopes that the findings and case studies included here support progress and momentum on this front.

The scope of the report did not allow research or analysis into elements such as the costs and cost-benefit of funding this type of local government action, or the relative return on investment of such funding compared to other energy efficiency programs or efforts. As such, recommendations that cite the need for more funding or support for local government energy efficiency and greenhouse gas reduction efforts, do not include these considerations. The study focused on input from local government officials, and those who work with them and was not meant to be a broad survey of opinion on these subjects.