

**The Southern California
Local Government Community Energy Efficiency Program**

Initial Findings Report

August 20, 1999

Prepared for:

The Building Industry Institute

By

Colorado Energy Group

Table of Contents

Purpose of This Report	2
Summary	2
Introduction	3
Advisory Group Organization, Goals and Objectives	4
National Review of Programs	5
Methodology	5
Major Findings	6
Major Recommendations From the Experts	9
Building Industry Needs	12
Draft Green Building Program Template/Discussion	13
Attachments	
1. Community Energy Efficiency Program Matrices (2)	
2. BII Community Energy Efficiency Program Survey/Questionnaire	
3. Colorado Community Energy Efficiency Program (Green Builder) Information	
4. Community Energy Efficiency Program Advisory Council Membership	

Purpose of This Report

This report contains three deliverables to the Building Industry Institute:

- 1) A description of the development of a Local Government Community Energy Efficiency Program Advisory Group and their associated goals and objectives;
- 2) An *Initial Findings Report* which reviews national, existing new residential construction-related community energy efficiency programs; and
- 3) A draft **Community Energy Efficiency Program**.

Summary

Preliminary discussions with Southern California local government officials and the homebuilding industry show promising interest in supporting and participating in a local government "**Community Energy Efficiency Program**." Most Southern California local governments realize that new residential construction impacts multiple areas, and a **Community Energy Efficiency Program** can also help them meet air quality, water efficiency and solid waste mandates.

The attached preliminary program is specifically tailored to the needs of Southern California local governments and the homebuilding industry, and complements the existing energy planning assistance provided to California cities and counties through the Local Energy Assistance Program (LEAP). Our **Community Energy Efficiency Program** development Team works closely with the Sacramento-based Local Government Commission, which receives LEAP funding through the California Public Utilities Commission to provide both energy technical assistance and information dissemination to counties and cities.

New residential construction in Southern California is staggering, far outpacing the national average. As a result, many local governments cannot keep up with inspecting homes to comply with new Title 24 requirements. They often lack the staff and resources to ensure that new homes meet this existing energy code—much less prove that a new home goes beyond code. In the words of one senior Southern California county planner, "The new residential home growth is too much for our staff. Our inspectors are overworked. If they are in a hurry and have to shorten their inspection, they often ignore the energy inspection. Energy is important, but it is not a 'life or safety' issue." A Community Energy Efficiency Program that can certify that new energy efficient residential construction meets Title 24 requirements at no direct cost to the City or County is welcomed by local governments.

Due to California's Title 24 energy code, a Community Energy Efficiency Program by definition will be more stringent than all existing new construction-focused "Community

Energy Efficiency Programs" (including "green builder" programs) outside the state of California. In addition to providing certification for homes built under the program, our draft voluntary Community Energy Efficiency Program will also meet national *EnergyStar* requirements—something no other existing programs do.

Plan-check delays are costing the homebuilding industry precious time and money in a market that shows no sign of slowing. Existing green building programs in Irvine and Santa Barbara, California, offer an expedited plan-check process and reduced fees to builders who participate in their programs. These incentives can be attractive options to spur additional green building in the Southern California. If local governments give homebuilders an expedited plan-check process for building “green,” the positive economic impact is considerable—maybe more than \$1,167.00 per home.

This Community Energy Efficiency Program requires that professionals design the HVAC system for each home. Local government officials tell our Team that receiving better, "professional" plans is one of the most attractive benefits of the program. Professional plans are appreciated by city and county planners in busy markets.

Any new local government energy efficiency program must be voluntary to guarantee an active homebuilder membership, and program staff must be willing to “get in front” of the homebuilder early and often to build trust. Voluntary green building programs are probably the most effective mechanism to date to get homebuilders to build beyond code, but the numbers supporting this fact are too small to trumpet at this time.

Voluntary new residential construction-focused energy efficiency programs provide wonderful opportunities to move markets. The draft Southern California **Community Energy Efficiency Program** is designed to overcome the major obstacles identified in our review of all known green building programs. The key ingredients are present--we have an interested homebuilding industry; active local government involvement; a strong, innovative utility involved; the support of air quality advocates; the California Energy Commission; and a multidisciplinary Advisory Committee that includes all relevant public and private entities necessary for success.

The stakes are significant. One large Southern California region homebuilder using the new **Community Energy Efficiency Program** in just two local jurisdictions will eclipse the size of every known new residential energy efficiency program in the country!

All experts interviewed for this report warned that an effective Community Energy Efficiency Program must invest heavily in marketing to succeed—and most experts recommended that the marketing must be directed at BOTH homebuilders and consumers. Investments of this magnitude are not for the timid. Program sponsors need to be aware of the costs for success.

Introduction

The Southern California homebuilding market is booming. The California market will grow by around 160,000 new homes this year, and many of those homes will be built in the Southern California region. Total housing units in many parts of Southern California are expected to grow more than 40 percent between 1995 and 2020. This growth rate has significant ramifications for Southern California's energy sector.

Forward-thinking utilities, local governments and homebuilders in some parts of the country have recently started "green building programs" to ensure that new construction in high-growth areas like Southern California is energy efficient and resource smart. "Green building" is generally defined as the design, construction, and operation of homes according to resource-efficiency standards for energy, water, building design and materials, and in California's case, outdoor air pollution. As in other parts of the United States, California policy makers and industry increasingly recognize the ability of stationary sources, such as new residential construction projects, to offset mobile air pollution sources.

Intent on establishing a new **Community Energy Efficiency Program** for local governments and homebuilders, a Green Building Development Team ("The Team") was established in the summer of 1999. The Team is comprised of representatives of the Building Industry Institute, the California Energy Commission, Consol, Inc., and the Colorado Energy Group, Inc. The Team is committed to building a meaningful **Community Energy Efficiency Program** that involves local governments and provides them with multiple benefits (air quality improvements, reduced vehicle miles traveled (VMT), reduced waste streams, etc.), and also incentivizes the homebuilding industry to improve the efficiency of new residential construction--and go beyond simply meeting Title 24 energy code requirements.

Advisory Group Organization, Goals and Objectives

While interviewing new residential green building experts across the country, the Team learned that an effective, helpful Advisory Group was crucial to the success of many programs. Prior to receiving funding from BII, the Team chose and contacted potential Advisory Group members based on their expertise and resources. Each member brings a knowledge base from his/her members and is an acknowledged leader in their field. During July and August 1999, the Team worked individually with selected Advisory Group members to draft preliminary Advisory Group objectives and goals. The Local Government **Community Energy Efficiency Program** Advisory Group members include:

- California Association of Local Building Officials (CALBO) – Larry Brooks, Senior Training Consultant;
- California Building Industry Association – Bob Rivinius, Chief Executive Officer;
- California Energy Commission - Daryl Mills, Local Government Coordinator;
- California Institute for Energy Efficiency – Jim Cole, Executive Director;

- California Integrated Waste Management Board – Steve Austrheim-Smith, Senior Waste Management Engineer;
- Environmental Protection Agency, Region IX – Bill Wilson, Regional Coordinator;
- League of Cities – Dan Carrigg, Executive Director;
- National Association of Home Builders – Ron Burton, Vice President, Codes and Standards;
- Natural Resources Defense Council – Noah Horowitz;
- U.S. Environmental Protection Agency, Energy Star Homes – David Lee, Program Manager; and
- U.S. Green Building Council – Christine Ervin, Director.

In addition to providing early suggestions about how and what to research as part of the *Initial Findings Report*, Advisory Group members are currently providing major input and suggestions on the **Community Energy Efficiency Program**.

As expected, during the research phase of the project, there has been little need for a formal Advisory Group meeting where all members attend. Individual meetings, fax updates and conference calls have met project needs to date. With a **Community Energy Efficiency Program** drafted that meets most of the early, individual needs of the Advisory Group members, the group will start to meet regularly. The first formal meeting of the Advisory Group is scheduled for late September 1999.

National Review of Programs

To help educate and brief the Advisory Group about the current status of local government residential-focused energy efficiency programs, the Team carefully reviewed the NAHB Research Center's April 1999 report, *A Guide to Developing Green Builder Programs*. The NAHB Research Center looked at six Community Energy Efficiency Programs (green builder programs) across the United States. Currently, less than a dozen green building programs exist nationally. Almost every one of these programs focuses on energy efficiency improvements as the primary feature. One, in Bremerton, Washington, focuses on reducing the solid waste stream from new construction.

While the report was extremely useful, it lacked specific information about many important issues, including explanations of the benefits to local governments for participating in these programs, the builder incentives used by each program, third party verification and certification experience, program funding sources, builder participation rates, the number of homes built under each program and lessons learned since the programs began. *Surprisingly, the report suggested, and our research validated, that no existing Community Energy Efficiency Programs regularly measure the environmental or total energy savings attributable to their program.*

Methodology

We were charged with delivering a national review of existing Community Energy Efficiency Programs to the Building Industry Institute. The Team decided to approach

experts from the six NAHB programs mentioned above for more details, and also to approach several other program staff in order to learn from their experience and attempt to benchmark a new program to the “best in business.”

The Team designed a telephone questionnaire (attached) for local and national green building program managers/experts. Between June 28, 1999, and July 22, 1999, local California and national green building experts were surveyed (interviewed) either in person or over the telephone. The nine interviews ranged between 30 minutes and two-hours, and averaged around one-hour in length, due primarily to the interviewee’s (strong) interest in helping our Team.

Experts from the following local government energy efficiency programs were interviewed:

Art Castle	Kitsap County’s <i>Build a Better Kitsap</i> (Washington)
Mark Richmond Powers (Texas)	City of Austin Community Energy Efficiency Program
Doug Seiter	Community Energy Efficiency Program of Colorado
Anthony Floyd Program	Scottsdale, Arizona’s Community Energy Efficiency
Eric Tolles	Irvine, California’s <i>IQ (Irvine Quality) Plus</i> Program (CA)
Anna Mayberry	HBA of Central New Mexico’s Community Energy Efficiency Program
Mike Weil	City of Boulder, Colorado’s <i>Green Points</i> Program
Brian Bosse	Santa Barbara, California’s <i>Innovative Building Review Program</i> (CA)
David Glanville	County of San Diego’s <i>Innovative Building Review Committee</i>

In addition to designing and implementing a detailed questionnaire for green building program experts, the Team also spoke with national energy efficiency experts from the non-profit advocacy community, the Center for Excellence in Sustainable Development, the U.S. Environmental Protection Agency, and the U.S. Department of Energy.

Additional research was performed by reviewing information from the web sites of every known Community Energy Efficiency Program in the United States, speaking with several homebuilders who belonged to existing Community Energy Efficiency Programs, and by phone conversations with resources identified by the green building program staff we interviewed. Essentially, the Team reviewed extensive program materials from every major national, and a handful of smaller, California and Arizona Community Energy Efficiency Programs. Essentially, the Team carried out the most extensive national review of green builder programs performed to date.

Major Findings

To help compare and contrast between the eight Community Energy Efficiency Programs we reviewed, the Team assembled a useful matrix. The Team filled in the matrix with information provided through the interview process. The areas included in the matrix are:

- ❑ Distinguishing Characteristics of the Program
- ❑ Program Benefits Offered the Builder
- ❑ Number of Homes Built Under the Program
- ❑ Program Funding Sources
- ❑ Most Helpful Groups During The Start-up of Program
- ❑ Sponsoring Organizations
- ❑ Utility Involvement
- ❑ Age of Program
- ❑ Energy Code Status in the State Where The Program is Located
- ❑ Certification and Related Costs
- ❑ Number of Builders Enrolled in The Program

Please see the Community Energy Efficiency Program Matrix (Attachment 1) for details of all eight programs reviewed. The major findings, and similarities and differences between the programs are more completely discussed below:

1) How Many Homes are Built Under These Programs?

Of the programs reviewed, the average Community Energy Efficiency Program is responsible for building 270 “green” homes each year. (Please note that most existing programs build fewer than 270 homes per year—the average is skewed due to a few big programs.) The annual range is from 19 to 750. Denver’s program believes they can certify an additional 7,000 *BuiltGreen* homes between now and 2002.

2) How Many Builders Belong to These Programs?

Of the programs reviewed, the average Community Energy Efficiency Program has 30 builder members. The range is from 2 to 72.

3) How Old Are These Programs?

Green building programs are a relatively new phenomenon. The oldest green building program in the United States in Austin, Texas began in 1991. The newest, in Scottsdale, Arizona, began in February 1998. The average age of the eight programs reviewed by the Team is 3.5 years.

4) Who Funds These Programs?

Funding for every program is as distinct, and unique as the States themselves. “Off-budget” support from multiple local government offices is common. Utility contributions, and state and local government funding are significant sources of funding for these programs. EPA and DOE grants also are intermittent, yet common funding sources. Builder fees are negligible contributors to overall program budgets. Some programs utilize significant volunteer staff. Annual program budgets ranged from \$1.3 million to \$2500.00.

5) What Primary Benefits Do These Programs Offer the Builder?

Consumer education and strong marketing support were judged by the majority of both program staff and homebuilders to be the two most important benefits to offer, and thus attract builders. An expedited plan/check process, fee reductions and waivers are also offered. All program staff interviewed said that recognition was an important benefit to builders. Some builders believed that the program helped differentiate them from other builders.

6) What Do Builders Want From Existing Programs?

We found most homebuilders join the programs for recognition and marketing support (in the words of one builder, “...a marketing edge.”). Homebuilders outside of the California and Arizona generally do not care about fee reductions or expediting the plan/check process. (The fees are generally small to begin with, and/or the plan/check process tends to be tolerable.) However, within California and Arizona where plan/check delays can be lengthy (and are increasingly common) expediting the plan/check process is extremely important to builders.

7) Is There Any Competition Within the Green Programs to Build “Greener”?

The Team discovered that almost all homebuilders across all programs build to the minimum (first) “green level” and stop there. To date, there is no competition to go beyond the minimum level. As new residential Community Energy Efficiency Programs spread, this is likely to change. Several programs are experimenting with methods to encourage competition at higher “green” levels, primarily involving special recognition (press events, etc.) for homebuilders who build to higher levels.

8) Which Builders Should We Target?

Almost all of the green building program staff interviewed commented that they had “wasted” precious time early in their program by focusing on small, custom builders, individually. Most every expert recommended focusing on production builders first. When production builders became involved in the Community Energy Efficiency Programs, other builders often followed. It is clear that peer pressure and consumer requests motivated other builders, including production builders, to join some programs.

9) How Are the Energy Efficiency Improvements Verified?

Verification of energy efficiency improvements across all Community Energy Efficiency Programs is virtually non-existent. While a handful of programs spot-check an average of 5 percent of the homes they credit, most programs lack the resources to effectively validate that the improvements were made. Self-certification is the norm. Irvine, California is the exception, certifying between ten- and twenty-percent of all homes built, depending on the success rate of the builder. (Please note that Irvine's program is very small.) Even the mandated *Green Points* program in Boulder, Colorado does not verify the majority of new energy efficiency measures installed--due to city government "turf wars" and the general lack of resources).

10) What Environmental (air, water, solid waste, etc.) and/or Energy Factors (Btus, kWh, etc.) Tend to Be Measured?

Surprisingly, no existing Community Energy Efficiency Programs document the environmental or total energy savings attributable to their program. Many program staff said it was important for the future, but most lacked the time and funding to perform the research. (Note: This is one key area where a Southern California local government energy efficiency program can differentiate itself from all existing programs.)

11) How Are These Programs Managed and Staffed?

All programs reviewed by the Team are either managed by a homebuilder association, a City or County government. The largest program (Austin) has nine employees and is hiring more, while most programs have less than two full-time employees. One program uses volunteers for the majority of its work. A few programs rely on voluntary committee review of proposed (new residential construction) plans.

12) What Role do Suppliers Have?

Suppliers (HVAC, insulation manufacturers, etc.) are often responsible for starting the programs, and can be valuable sponsors. Our Team discovered that the suppliers often bring the builders to the programs. Most interviewees cautioned against allowing suppliers to sponsor our new Community Energy Efficiency Program, commenting that cities and counties should not be perceived as giving preferential treatment to one company over another. Central New Mexico's Green Builder Program is co-sponsored by the insulation manufacturer, Owens-Corning, however, the program is not managed by a city or county--the program is managed by a homebuilder's association.

13) What About Energy Codes?

Some of the existing Community Energy Efficiency Programs we reviewed are located in states that have no energy codes. Other programs were in states with Model Energy Code (MEC) 92, MEC 93 or MEC 95. Two programs (Irvine and Santa Barbara) exist under California's Energy Efficiency Code, Title 24. Since California builders are already

required to build to Title 24 guidelines, which is more stringent than the most current version of the Model Energy Code, this has important implications for any new California Community Energy Efficiency Program. Please note: Irvine's program was started to simply provide the builder an incentive to test for Title 24 energy efficiency measure performance and enhancements, while Santa Barbara's program is more aggressive, encouraging builders to specify features that would make the home 20, 30 or 40 percent more efficient than Title 24.

Major Recommendations From the Experts

As part of our interviews, we briefly explained factors surrounding Southern California's homebuilding industry, and then asked each Community Energy Efficiency Program expert what recommendations they have for a potential new program in the Southern California region. With the average program staff having 3.5 years experience with their program, we wanted to make sure we benefited and learned from their successes and failures.

The major recommendations from the experts, in approximate descending order of importance are:

1. Invest heavily in education and marketing outreach to both builders and consumers. All experts suggested educating both groups concurrently, or the program will likely fail;
2. Go after the market leaders and the others will follow;
3. Make the program voluntary, and mandate as little as possible to ensure active builder participation;
4. Keep the program simple and easy to join. Clarify program requirements early—make them simple and easy to follow and use;
5. Sell comfort, quality and/or health benefits to the consumer first—not necessarily energy savings;
6. Meet regularly with your builder participants—establish continuity and trust;
7. Be patient—builders are slow to innovate;
8. Set-up and maintain close contact with a respected Advisory Committee;
9. Solidify the budget and show the builders that you are here for the “long-term;”
10. Make the program adjustable and allow for future “updates;”
11. Provide opportunities for recognizing innovation through special awards; and

12. Provide “incentives” to “do better”--a favorite for California programs was to expedite the plan-check process.

Building Industry Needs

The Southern California homebuilding industry has unique needs. As mentioned earlier, the supply of new homes in the Southern California region cannot keep pace with consumer demand. Local government planning departments are largely unable to keep up with the demand for new permits and verification requirement that new homes meet Title 24 energy efficiency provisions.

Expedited Plan/Check Process

Homebuilders in the Southern California market are experiencing significant delays in the plan/check process. Delays are especially long in Southern California County this year. While there is scant data confirming the costs associated with these delays, they are generally perceived to be “expensive” for most Southern California regional homebuilders. The Team will attempt to quantify these delays in coming months.

Preliminary estimates suggest the average production builder with a 200 home development in the Southern California region, with a (conservative) average \$350,000.00 sales price for each home, working on 8 percent financing, who experiences a one-month delay, can lose roughly \$233,500.00 that month, or \$1167.00 per home. This rough estimate (simply) assumes a total \$70 million investment in the housing development, and that 50 percent of the 200 homes can be sold one month earlier due to an expedited plan/check process, therefore allowing the homebuilder to avoid one month’s interest on the financing for those homes. Given Southern California’s existing housing shortage, this is a realistic sales scenario. Therefore, homebuilders are interested in a possible Community Energy Efficiency Program that assists with expediting the plan/check process in the Southern California region.

Fee Reductions/Waivers

Homebuilders in the Southern California market are also interested in fee reductions and/or fee waivers. While generally less important than an expedited plan/check process to most homebuilders, fee reductions can be an important feature. Since fees tend to be high in the Southern California region, this feature may attract homebuilders to a new program.

Southern California homebuilders want to see a voluntary program, with no mandate. Some builders perceive a new Community Energy Efficiency Program as a way to avoid potential new mandatory regulations, while others perceive the program as a way to prepare for future regulations. Says one California builder representative, "If Title 24

does become more stringent in the future, this program will have helped prepare us to be way ahead of the curve."

Draft Community Energy Efficiency Program

The tentative new program will focus on energy efficiency first, followed later by topic areas chosen by local governments (most likely, waste management and water efficiency). With respect to energy efficiency, our tentative program already has the following minimum requirements:

- Homes must exceed the 1993 Model Energy Code by 30%, and meet all EPA/DOE Energy Star Homes requirements;
- The program includes an HVAC layout and design from an engineer registered by the state of California;
- Homes must meet the California Energy Commission "Tight Duct" criteria (essentially requiring that leakage be less than six percent);
- The homes must be rated using a HERS rating method and scale that conforms to DOE, EPA, and secondary market guidelines (e.g., a 93 MEC compliant home scores an 80 on a scale of 1 to 100, and an Energy Star Home scores an 86 on the same scale);
- HERS inspections and diagnostics must be performed by a California Energy Commission accredited Home Energy Rating System Provider;
- The HERS inspections and diagnostics must be performed by a third party and cover insulation, caulking and sealing, windows, water heating and HVAC equipment, and duct leakage; and
- The HERS documentation for the lender report must use the format generated by the Building Industry Institute consensus process (Home Lender Report).

For more details, please see the **Community Energy Efficiency Program Guide**.