

## CA New Homes Program (includes Advanced Home)

<b>1. Projected Program Budget</b>	<b>\$</b>	<b>18,294,211</b>
<b>2. Projected Program Impacts</b>		
MWh		12,766
MW (Summer Peak)		8.72
<b>3. Program Cost Effectiveness</b>		
TRC		0.42
PAC		0.80

#### 4. Program Descriptors

Market Sector: Residential New Construction  
Program Classification: Local  
Program Status: Revised Existing

#### 5. Program Statement

Production builders are generally aware of the impending changes to the Title 24 Building Energy Efficiency Standards effective October 1, 2005. However, there is concern among builders as to which energy efficiency strategies they will be able to cost-effectively incorporate in their projects. "California ranks third among all states in new housing production so far this year, behind Florida and Texas."<sup>1</sup> Even though there is a slight decrease in new housing production in California in 2005, it is expected to remain above the 200,000 unit level through 2006.<sup>2</sup>

The residential new construction market for both single family and multifamily housing has long been recognized as a potential lost opportunity for long-term energy savings.

#### What's New for 2006-08?

- **Innovation**
  - includes prescriptive component and showcase/demonstration component
  - partner w/SCG
- **Integration**
  - Collaborative links with multiple SCE energy efficiency programs containing new construction program elements (Comprehensive HVAC, Residential Lighting, Local Government Partnerships)
- **Other Program Improvements**
  - Increased comprehensive training offerings

In 2004, SCE's California Energy Star® New Homes Program (CESHNP) committed more than 7,100 single family units and over 2,500 multi-family units resulting in a total

<sup>1</sup> Construction Industry Research Board (CIRB) Review, April 28, 2005, pg. 2

<sup>2</sup> CIRB Review, April 28, 2005, pg. 4

of 8,430 MWh of net annualized energy savings and 9.1 MW of net peak load reduction. Based on building trends and forecasts from the California Industry Research Board (CIRB), housing permits increase an average of 3% per year. For 2006, approximately 140,000 single family and 60,000 multifamily housing units are forecasted for the entire state. Of those statewide permits, 50 percent will be single family homes and 70 percent will be multi-family units to be built throughout Southern California. Therein lies a huge opportunity for SCE to continue to influence builders, assist customers with energy efficient solutions, and contribute towards the states and utilities collective goals of reducing kWh usage and load demand. Constructing residential housing that exceeds *the entire country's* energy efficiency standards is not only commendable but sensible economically and environmentally.

**Constructing residential housing that exceeds *the entire country's* energy efficiency standards is not only commendable but sensible economically and environmentally.**

Currently, the award-winning CESHNP is a performance-based program that encourages and assists builders to incorporate energy efficient technologies and design in the homes they construct to exceed the California Title 24 Energy Efficiency Standards by a minimum of 15%.

In California, homes built to current Title 24 standards are 15% more efficient than homes built to the federal government's standards. This is due in part to the adoption of AB970 and subsequent revisions to Title 24 in 2001. Effective October 1, 2005 the

**Effective October 1, 2005 the California Energy Commission (CEC) will again make significant changes to energy code standards that will raise the efficiency requirements of California homes.**

California Energy Commission (CEC) will again make significant changes to

energy code standards that will raise the efficiency requirements of California homes. These new requirements will increase the standards by an additional 15% for new homes built in California. That said, California's building codes will exceed the rest of the nation by 30%. These new standards will be challenging and more costly to meet compared to the existing standards. For instance, current code for HVAC installations require a 10 SEER unit, the new October 2005 code requires a 13 SEER unit which is more expensive and at this time less attainable in the market in mass quantities. Other cost increases and code changes include, but are not limited to, lighting standards.

At this time, single family and low-rise multifamily builder projects meeting the program requirements will also meet the requirements of the U. S. Environmental Protection Agency (EPA) Energy Star® Homes Program. Currently, the EPA has proposed changes to the Energy Star® specifications for new homes and are expected to be finalized in July 2005 at which time the utility may adjust program requirements.(The EPA does not

currently recognize high rise construction with the Energy Star label. The information gathered as a result of this program is shared with the EPA Energy Star®. EPA is interested in the outcome of this program activity for possible future Energy Star designation of multifamily buildings that are four or more stories.)

## **6. Program Rationale**

The CESHNP targets builders and developers for the improvement of energy efficiency in single family and multifamily dwelling units. The California Building Industry Association (CBIA) and the California Energy Commission (CEC) continue to look to the utilities to help in educating builders and other industry participants in advancing increased energy efficiency in new construction. The value of this statewide program is greatly recognized by the Environmental Protection Agency (EPA) and has won Energy Star® Partner of the Year awards for the past three consecutive years.

According to the RLW 2002 EM&V on the CESNHP prepared for California IOUs, RLW's findings declared the value of the program as follows: "The 2002 Energy Star New Homes program was overall a tremendous success in California."<sup>3</sup> "The Energy Star

**The value of this statewide program is greatly recognized by the Environmental Protection Agency (EPA) and has won Energy Star® Partner of the Year awards for the past three consecutive years.**

program has been successful in establishing awareness about energy efficient building measures. In collaboration with the EPA, the Energy Star® logo is a recognized symbol of quality and energy efficient homes. The collaboration between the utilities established uniform services offered to customers. In addition, it allowed for an opportunity to exchange ideas and to combine efforts."<sup>4</sup>

Though builders will face challenges to exceed code after October 1, 2005, studies show that with education and assistance from utilities and industry consultants, "The results of the interviews with Title 24 consultants revealed the same pattern – the most difficult period of adjustment immediately follows the inception of new standards. Over time, builders adjust their practices and accept the new requirements."<sup>5</sup>

With increased estimates of single-family and multi-family new construction for the Southern California region, offering the CESNHP continues to meet the needs of:

- California home buyers
- The Building Industry
- The Governor's Executive Order S-20-04, The Green Building Action Plan

---

<sup>3</sup> Evaluation, Measurement and Verification of the 2002 California Statewide Energy Star® New Homes Program, RLW Analytics, Inc. Phase 1 Report – March 1, 2004, Chapter 1, page 3

<sup>4</sup> Evaluation, Measurement and Verification of the 2002 California Statewide Energy Star® New Homes Program, RLW Analytics, Inc. Phase 1 Report – March 1, 2004, Chapter 13, page 187

<sup>5</sup> Residential New Construction Baseline Study of Building Characteristics, ITRON August 17, 2004, page 7-4

- SCE's Energy Efficiency Goals

In order to encourage and increase builder participation, SCE will expand upon the strong base already developed through the CESNHP. This will be accomplished by offering additional opportunities to incorporate energy efficiency into new projects cost effectively. The Residential New Construction program will expand in 2006-2008 to include three program elements:

- performance-based approach (CESNHP)
- prescriptive approach
- demonstration or design showcase approach (Advanced Home)

Due to the increased Title 24 code changes and the challenges they present, it is now necessary to offer a new innovative two-tiered approach as a means of encouraging

**Due to the increased Title 24 code changes and the challenges they present, it is now necessary to offer a new innovative two-tiered approach as a means of encouraging builder participation through options and choices.**

builder participation through options and choices. This will be accomplished by presenting different scenarios for measure/system installations in order for builders to stay within energy budgets and meet energy efficiency requirements.

These options will allow more builders to participate and qualify for incentives which in turn allows a diverse group of residential housing projects (i.e., small and large production single-family and multifamily, manufactured homes, custom homes) to qualify as Energy Star® rated. Customers will benefit from the increased energy efficiency of their home by realizing energy savings, lower utility bills, and superior comfort compared to standard new housing. SCE will review and assess current documentation related to the potential development of an additional program component for manufactured housing via an upstream incentive program for manufacturers.

Fixed incentives will be provided to builders for achieving either the performance or prescriptive program qualifications. The performance approach will provide rebates for achieving a minimum 15% above Title 24. The prescriptive approach will provide rebates for deemed savings where builders can earn incentives for measures that are more efficient than those that would be required for minimum 2005 Title 24 compliance.

#### **Program Advisory Group and Public Workshop Meetings**

During the program planning process, the following recommendations were made by the Program Advisory Group (PAG) and Public:

*Recommendation:* Include solar heating in the program, for example, solar heating in combination with tankless water heating.

*Action:* Currently the statewide PAG is investigating opportunities for energy efficiency in water heating. Solar space heating is not included in the program.

*Recommendation:* Create a tiered incentive approach in the program. Also tie appliances to the purchase of the new home.

*Action:* SCE integrated a tiered incentive approach with 25% improvement required under the prescriptive program in coastal areas. A Welcome Home packet will be available to new homebuyers which will promote efficient appliances among other information.

*Recommendation:* Provide incentives for buildings/homes for not installing central air conditioning in new construction.

*Action:* This recommendation was not integrated into the program. Builders would not support the recommendation because consumers prefer to have central air conditioning installed in new homes.

*Recommendation:* Agrees with Whole Building Analysis/approach. Piecemeal approaches do not work. Need a program that focuses on older homes.

*Action:* This program incorporates a whole building approach. SCE has other programs that focus on existing housing.

*Recommendation:* The program should provide education on HVAC - testing & sealing.

*Action:* The California New Homes program will coordinate service delivery with SCE's Comprehensive HVAC program which provides the recommended services.

*Recommendation:* Train evaluators to look at the whole package. There is an industry opportunity for independent evaluation of needs in whole house approach.

*Action:* The California New Homes program has a performance based element that facilitates a whole house approach to energy efficiency improvements.

*Recommendation:* Develop a certification program for homes that are brought up to a higher energy efficiency level.

*Action:* Participating homes in the California New Homes programs are certified as EnergyStar homes.

*Recommendation:* Encourage builders to incorporate a chip into new homes to monitor performance.

*Action:* Builders are not receptive to the chip proposal. Widespread agreement on design and protocols for the chip would be required prior to implementation.

*Recommendation:* The 10-15% proposed level for Residential New Construction appears too low. It should be increased to a level such as 50%.

*Action:* The California New Homes program will continue to encourage builders to exceed building efficiency standards by 15%.

*Recommendation:* Improve Title 24 software - but it should continue to be used.

*Action:* SCE will continue to use the existing Title 24 based software.

*Recommendation:* An additional tier above the 15% tier should not be added. SCE should look into fixing software if it can be manipulated to reach proposed tier levels.

*Action:* The California New Homes program will continue to encourage builders to exceed building efficiency standards by 15%.

*Recommendation:* The program should incorporate demand response measures such as smart-thermostats.

*Action:* The California New Homes program will incorporate demand response measures when they are feasible.

*Recommendation:* A 3-year plan, not a short-term plan, is needed for New Construction.

*Action:* The program addresses the next phase of homes that will be constructed after the expected adoption of more stringent Title 24 building standards in 2005.

*Recommendation:* Design competition may be a good strategy to pursue. Take risks to move the market beyond new standards.

*Action:* The program has been expanded to include a prescriptive approach and a demonstration/design showcase approach to continue the advancement of energy efficiency beyond the expected revisions in 2005 to Title 24 standards.

*Recommendation:* The program misses the remodeling market and should be expanded to incorporate this market.

*Action:* SCE will look for opportunities to provide energy efficiency options in the remodeling market. SCE has other programs that serve this market.

*Recommendation:* The program would benefit from an upstream strategy for the manufactured home market.

*Action:* SCE will review and assess current documentation related to the potential development of an additional program component for manufactured housing via an upstream incentive program for manufacturers.

*Recommendation:* Breakout a HVAC component for the new construction program including appropriate installation training and make it an upstream strategy.

*Action:* HVAC is part of the new Comprehensive HVAC program.

## **7. Program Outcomes**

The desired outcomes of the program are:

- Increased builder participation
- Increased number of Energy Star® rated new homes (single-family and multi-family)
- Increased energy efficiency benefits for customers (energy efficient home, lower utility bills)
- New opportunities for new construction in SCE's service territory
- Innovative methods of delivering a new revised program

- Continued synergistic efforts for program delivery among utilities
- Advance California’s energy efficiency goals
- Heightened awareness of energy efficiency practices and services through education and training sessions on new and emerging technologies and programs that target the building industry

**8. Program Strategy**

The population of California continues to increase rapidly as does the need for new housing. Energy efficiency has been identified as an important factor for builders in marketing their homes. Builders also confirm that energy efficiency features and Energy Star® marketing helps to differentiate their homes from their competitors. Awareness by home-buyers of the importance of energy efficiency will lead to higher demand for energy efficient homes and the desired response from builders to meet this demand.

Working together with single and multifamily builders, developers, architects, energy analysts, and other building industry professionals, this program will seek to increase energy savings which will be achieved through a combination of education, design assistance and financial incentives.

The new program will offer a performance-based component of 15% above Title 24 for all climate zones, as well as a prescriptive component containing a select list of measures from which builders not seeking the use of performance eligibility, may install above and beyond their

minimum Title 24 compliance. In addition, SCE will offer a second performance tier in the inland areas

**Through the demonstration projects, the Advanced Home program will cover areas of sustainable design and emerging technologies as well as increased educational opportunities to builders.**

(climate zones 8-16). This tier will be determined following bidder responses to the CA New Homes RFP. The prescriptive component will capture additional energy savings that would otherwise be considered “lost opportunities” for achieving energy efficiency savings when only offering performance-based options.

In addition, SCE will collaborate with SCG in offering the Advanced Home Program. This program offers residential new construction program support with technological changes in construction that increase not only energy savings but provide a more comfortable environment for the residential occupant. Through the demonstration projects, the Advanced Home program will cover areas of sustainable design and emerging technologies as well as increased educational opportunities to builders.

**Performance Based Incentives**

Program	Climate Zone (See Note 1.)	Performance Level	Incentive per Dwelling Unit
Single Family	Coastal	15%	\$400.00

Single Family	Inland	15%	\$500.00
Multifamily	Coastal	15%	\$150.00
Multifamily	Inland	15%	\$200.00
Multifamily Design Assistance	All Climate Zones	All	\$40.00 (Max \$6,000/project)
Multifamily Inspection	All Climate Zones	All	\$50.00 (Max \$5,000/project)

Note 1: For the purpose of energy usage analysis, California is divided into 16 geographical areas, which have typical weather conditions and are referenced as climate zones. The CESHNP defines climate zones 1-7 as coastal and 8-16 as inland.

### Prescriptive Based Incentives

Measure	Climate Zone (See Note 1.)	Incentive per Dwelling Unit
HVAC Quality Installation, Airflow/Refrigerant charge	All Climate Zones	\$40.00
Verified Ducting System (Tight Ducts)	All Climate Zones	\$175.00
Quality Insulation Installation	All Climate Zones	\$150
Lighting	All Climate Zones	\$10.00 per fixture
Energy Star® Appliances	All Climate Zones	\$50

The program will continue to identify the performance component of the program through Energy Star® New Homes to both builders and homebuyers. Numerous surveys and studies continue to show the Energy Star® label represents greater value and awareness for energy efficiency to consumers and the environmental stewardship it symbolically represents.

#### 9. Program Objectives

The primary objective is to increase energy efficiency above state standards in new single and multifamily homes. In a recent strategy assessment report, builders were surveyed and the majority believed that energy efficiency is an important factor in marketing their homes currently. Also, a large percentage responded that they believed that the importance of energy efficiency in marketing new homes will increase with the implementation of the 2005 changes to Title 24. The program will focus on maintaining this focus on energy efficiency.

#### 10. Program Implementation

SCE maintains strong community ties and well-developed relationships with local associations and organizations that serve the building industry. The program managers will continue to work closely with an implementation team made up of field personnel as well as third parties with technical expertise in both the multifamily and single family markets. The implementation team will market the program to builders, provide technical and feasibility analyses, and assist with program documentation and application requirements. In addition, SCE will seek to coordinate with other internal energy efficiency programs containing new construction elements such as the Local Government Partnership, Comprehensive HVAC, and Residential Upstream Lighting programs. SCE also will coordinate on a statewide level with the IOUs, where applicable.

In addition, SCE will collaborate with SCG to collectively offer the Advanced Home program to builders seeking assistance in the development of sustainable design and construction, green building practices and emerging technologies.

### **11. Customer Description**

The program shall target all residential builders regardless of production size, market segment, or geographic location. In addition, continued attention will be directed towards customers who typically do not have easy access to program information or generally do not participate in energy efficiency programs for a variety of barriers.

### **12. Customer Interface**

SCE will present the program to builders, developers, Title 24 consultants, architects, and other building industry professionals. SCE will also promote participation through a team of implementers including but not limited to field representatives, subcontractors, and industry trade vendors who will work directly with the builder as well as their affiliated design and installation team.

### **13. Energy Measures and Program Activities**

#### **13.1. Measures Information**

Measure information is provided in corresponding cost-effectiveness calculator and portfolio workbook.

#### **13.2. Energy Savings and Demand Reduction Level Data**

Energy savings and demand reduction information is provided in portfolio workbook.

#### **13.3. Non-energy Activities**

The program will continue to offer comprehensive training courses and educational seminars relevant to building energy efficiency into new construction projects including Title 24 code training. Other activities include attendance at building industry trade conferences/outreach events and contractor/builder field visits as necessary. The target audience consists of builders, developers, energy consultants, architects, and other industry professionals.

#### **13.4. Subcontractor Activities**

Residential New Construction third-party implementers will provide direct implementation services for builder outreach, design assistance, plan check procedures, and field verification. These services will be utilized to review all project submittals to ensure that they meet both minimum state energy code compliance (Title 24) and the CESNHP program criteria. The consultants and staff selected will have extensive experience in all areas of energy code compliance, HERS verifications and knowledge of construction practices as they relate to the energy code.

### **13.5. Quality Assurance and Evaluation Activities**

An inspection of the fully constructed dwelling unit will ensure that all measures have been installed according to CEC established protocols. Appropriate benchmarks will be determined for measures which do not have an established protocol.

#### **13.5.1. Expected Number/Percent of Inspections**

At this time it is undetermined as to the planned number of inspections. However, SCE will follow protocols established by the CEC for the specific measures.

### **13.6. Marketing Activities**

Program marketing and outreach will be achieved through various methods including printed program literature, direct mail, and media advertising in various industry trade magazines. SCE will also directly market to the single family and/or multifamily homebuilders through local and regional involvement with the Building Industry Association, Affordable Housing Association, and other associations related to single family and multifamily residential new construction markets. In addition, SCE will continue its presence in key industry events by attending and exhibiting in regional and local trade shows that offer opportunities to promote the program. Finally, SCE will seek to educate and inform consumers most effectively through potential SCE bill inserts and outreach through local community events as to the benefits and performance features of energy-efficient new homes.

## **14. Program Changes**

The program will offer a second performance tier in the inland climate zones for builders to exceed Title 24 above the minimum 15% tier. The second tier is proposed to be at 20% or higher above Title 24. Prescriptive incentives will also be offered in the areas of lighting and HVAC. Additional program changes are likely to be made following confirmation of the selected bid award for the CA New Homes proposal.