

Residential New Homes Programs

Exemplary Programs

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*Residential New Homes Programs
Exemplary Program*

***ENERGY STAR® New Homes Program
Pacific Gas & Electric
San Diego Gas & Electric
Southern California Edison
Southern California Gas***

Note: The ENERGY STAR® New Homes Program is a statewide program in California. Each investor-owned utility—Pacific Gas & Electric, San Diego Gas & Electric, Southern California Edison and Southern California Gas—offers this program to its customers. The fundamental program design and package of services is common among these utilities. The programs share participation guidelines, eligibility requirements, rebate schedules and other program options, although some of the specific details of program design, implementation and customer options may vary somewhat. There is a statewide team with representatives from each utility that meets regularly to ensure that the program is administered consistently across the state.

The profile below is for PG&E’s ENERGY STAR® New Homes Program. We include participation results from the statewide program in the “Program Performance” section and also include additional summary for Southern California Edison at the end of this profile (“Program at a Glance”).

PROGRAM OVERVIEW

PG&E’s ENERGY STAR New Homes program offers incentives to builders who construct energy-efficient homes that achieve long-term, cost-effective energy savings. PG&E also provides potential home buyers with information on these ENERGY STAR new homes and offers an online tool for locating them. The program targets all types of residential builders: small and large residential single family production home builders, custom home builders; and builders of condominium and apartment projects.

PG&E has been promoting energy-efficient new homes to customers since 1992. The program, which was originally called Comfort Home, targeted potential home buyers. In 2001, the program’s focus expanded when PG&E became a participant in the ENERGY STAR New Homes program. PG&E’s ENERGY STAR New Homes Program promotes change in the residential new homes market with a “push-pull” approach, urging developers to build more energy-efficient homes and promoting these homes to potential buyers. PG&E takes advantage of the current building industry infrastructure, partnering with key players to improve the way homes are constructed.

The ENERGY STAR New Homes Program addresses energy efficiency at the “birth” of a house—a time when the most effective measures can be taken. The program takes a whole-house approach: everything from insulation to temperature control factors into the effort to create a

home with a lower energy footprint. Approaching the house as a system allows builders to maximize potential energy savings and energy efficiency measures.

Homes carrying the ENERGY STAR® label, a nationally recognized and respected standard, have an appeal for both the builder and the home buyer. Builders whose homes meet this standard earn not only a financial reward, but the brand-recognition rewards of ENERGY STAR. Home buyers, in turn, can trust that their house has been constructed, top-to-bottom, with energy efficiency in mind.

PG&E works with builders to ensure that ENERGY STAR qualified new homes exceed California's already rigorous energy efficiency standards by at least 15 percent. By basing the program on existing building codes, PG&E reinforces the state codes and provides a single standard for builders to follow. Incentives are based on tiers of energy-efficiency improvements at various levels beyond the California standard. Builders of homes that exceed California's codes by 15% or more receive an incentive of \$400 to \$500 for single family homes and \$150 to \$200 for multifamily buildings (per unit).

While the California ENERGY STAR New Homes program requirement is to exceed state efficiency standards by at least 15 percent, PG&E has created other ways that builders can participate in the effort. It offers "a la carte" incentives for certain improvements that are made but do not meet the 15-percent level. The program also has a tier for exceeding state code by 35 percent. (this option is not statewide yet).

Builders also are allowed to use the prestigious ENERGY STAR label to market their new homes to consumers. The ENERGY STAR New Homes Program provides builders with marketing materials and web site referrals. In addition, PG&E markets the ENERGY STAR New Homes brand at events in order to draw increased customer interest and awareness.

For homebuyers, the ENERGY STAR New Homes Program provides home-buying kits with information and coupons with the goal of raising awareness of the benefits and availability of ENERGY STAR New Homes. PG&E also offers a website that offers an easy-to-use home finder that maps out ENERGY STAR qualified new homes throughout its service territory and lists contact information for interested buyers.

PROGRAM PERFORMANCE

ENERGY STAR qualified homes can include a variety of energy efficient features, including effective insulation, high performance windows, tight construction and ducts, efficient heating and cooling equipment. These features contribute to improved home quality and homeowner comfort and to lower energy demand and reduced air pollution. Compared with standard homes, ENERGY STAR qualified homes use substantially less energy for heating, cooling, and water heating, delivering \$200 to \$400 in annual savings.

The table below presents summary data on the number of homes receiving incentives through PG&E's ENERGY STAR® homes program; the relatively large fluctuations from year to year

are functions of both conditions in new housing markets (mostly number of new starts) and PG&E's program budgets. These variables have themselves fluctuated significantly from year to year.

Number of ENERGY STAR homes in PG&E's Service Territory

Year	Approximate Number of Homes Incented
2002	5,500
2003	11,000
2004	5,300
2005	11,200
2006	4,000

Statewide results for number of ENERGY STAR homes completed are given below:

Utility Name	2002	2003	2004	2005
PG&E	5,500	11,000	5,296	11,221
SCE	6,500	8,000	7,591	18,714
SDG&E	3,500	8,000	4,562	9,913
SoCalGas	3,500	4,375	5,296	12,041
	19,000	31,375	22,745	51,889

This program has a significant impact on the homebuilding market in California. Builders are very interested in receiving the ENERGY STAR label for their developments. It sets them apart from other developments, gives them a strong marketing edge, and may also lead to higher home prices. PG&E helps stimulate demand for ENERGY STAR homes within its service territory by educating consumers about the benefits and availability of ENERGY STAR homes. In these ways the program works both on the supply and demand sides of the residential new homes market.

LESSONS LEARNED

PG&E has a long record of offering programs and services to promote energy efficiency in new construction. These markets are dynamic, requiring PG&E to be vigilant about new opportunities that arise to meet this objective. As an example, PG&E has recently aligned its Residential New Construction program requirements by adding tiers that align with those of the energy efficiency requirements of the California Energy Commission's (CEC) New Solar Homes Partnership (NSHP), making it easier for builders to participate in both programs. NSHP is part of California's larger statewide solar initiative (passed in 2006). The CEC established the NSHP to provide incentives to builders who install solar photovoltaic panels on new homes. Before incentives are paid through the NSHP, builders are required to maximize the energy efficiency of their buildings.

In March 2007, PG&E added new incentives levels to its program that mirrored the energy efficiency requirements of the NSHP. Builders can collect these incentives in addition to solar incentives offered by the CEC. The incentives and requirements for this option are summarized in the table below:

Requirement under NSHP	Incentive from PG&E*
<ul style="list-style-type: none"> • 15% above California building codes • Installation of ENERGY STAR appliances 	\$400/\$500 per home
<ul style="list-style-type: none"> • 35% above California building codes • 40% cooling reduction • Installation of ENERGY STAR appliances 	\$2000 per home

* Note: incentives vary based on California Climate Zone, as defined by the CEC

The expansion of the Residential New Construction program to address the NSHP energy efficiency tiers will allow PG&E to maximize its market penetration and market its program to additional builders who otherwise might not be as interested in the energy efficiency rating of their new homes.

PROGRAM AT A GLANCE

Pacific Gas & Electric

Program Name: ENERGY STAR® New Homes Program

Targeted Customer Segment: Small and large residential single family production home builders, customer home builders, and multifamily builders (apartment and condominium projects).

Program Start Date: 2001 as ENERGY STAR® New Homes; had been related new homes programs dating back to 1992.

Program Participants: In 2007 there have been 6293 units that received incentives and there are another 3571 units committed to the program. In 2006 there were 4000 homes that received incentives; and 2005 there were 11,200 homes that received incentives.

Annual Energy Savings Achieved:
2005 results: 1.03 million kWh and 303,445 therms (gross savings)

2006 results: 0.807 million kWh and 188,182 therms (gross savings)

Peak Demand (Summer) Savings Achieved:

Not available.

Budget: The 2006-2008 incentive budget is \$20 million.

Funding Sources: California ratepayers through public goods charge (PGC) funds

Best Person to Contact for Information about the Program

- John Chyka, Program Manager, Pacific Gas and Electric Company
- Phone: 415-973-3585
- Email: Jacj@pge.com

Southern California Edison

Program Name: ENERGY STAR® New Homes Program

Targeted Customer Segment: Small and large residential single family production home builders, customer home builders, and multifamily builders (apartment and condominium projects).

Program Start Date: ENERGY STAR homes incorporated into SCE's Residential New Construction Program in 2002.

Program Participants: Thus far, over 7,241 ENERGY STAR units have been delivered to the Program in 2007 from previous year commitments. Since February 2007, over 800 ENERGY STAR single family homes have been committed to the program, of which more than half were 20 percent above code homes.

Annual Energy Savings Achieved: 588,000 kWh

Peak Demand (Summer) Savings Achieved: Not available

Other Measures of Program Results to Date: Since February of 2007, 1,300 ENERGY STAR dishwashers and 550 ENERGY STAR refrigerators

are being installed in single family homes committed to the Program.

Budget: The 2006 -2008 single family incentive budget is approximately \$11 million

Funding Sources: California ratepayers through public goods charge (PGC) funds

Best Person to Contact for Information about the Program

- Jonathan Budner, Project Manager – California New Homes Program
- Phone: 626-633-3123
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*Residential New Homes Programs
Exemplary Program*

***Vermont ENERGY STAR® Homes / Homebase New Construction
Efficiency Vermont
Vermont Gas Systems, Inc.***

PROGRAM OVERVIEW

Efficiency Vermont and Vermont Gas Systems, Inc. (VGS), jointly implement the Vermont ENERGY STAR® Homes (VESH) service within the northwestern area of Vermont, where most of the population resides. In addition, Efficiency Vermont implements the VESH service throughout the rest of the state. All residential new construction projects in Vermont are eligible for technical assistance and incentives from Efficiency Vermont, and projects using natural gas are eligible for additional rebates from VGS.

VESH service has two participant tracks: (1) single-family, individually metered buildings, and (2) multifamily, master-metered dwellings. The single-family track includes both individually metered (for gas), stand-alone single-family homes, and individually metered attached dwellings, such as condominiums and row houses. All participants receive technical assistance, on-site inspections with shell and duct tightness testing, State Energy Code verification, and Home Energy Ratings at no cost. To qualify for the ENERGY STAR label, and any other certification, including Code compliance or Energy Policy Act 2005 qualification, participants must build to the performance standards for EPA ENERGY STAR Home labeling, and install: (1) an ENERGY STAR-labeled central heating system that also meets strong combustion air standards, (2) controlled mechanical ventilation, and (3) a minimum of four energy-efficient lights in moderate- to high-use locations (hardwired compact fluorescent).

Additional incentives are available from VGS and Efficiency Vermont for lighting (at least 10 fixtures total), contractor-installed compact fluorescent screw-based bulbs, ENERGY STAR appliances, efficient furnace fans, gas-powered clothes dryers, and for clotheswashers and central air conditioners that have efficiencies above the current thresholds for ENERGY STAR qualification. Within VGS territory, an additional incentive is available for waste drain heat recovery units.

The multifamily building track treats master-metered dwellings on a custom basis, though participants are still encouraged to bring their buildings up to ENERGY STAR standards. Efficiency Vermont performs analyses of mechanical, thermal, and domestic hot water energy efficiency measures. In cases where the multi-family buildings are heated by natural gas, Vermont Gas Systems partners with Efficiency Vermont in negotiating the total energy efficiency incentives with builders to maximize the savings opportunities in these projects.

VESH focuses on one-on-one direct technical assistance to builders, their subcontractors, and allied trades. Program staff work closely with each Vermont builder to assess the level of energy efficiency that is appropriate for each project, and to assist in the implementation and installation

of energy efficiency at the highest level possible. VESH provides assistance to each Vermont ENERGY STAR Homes participant early in the home-planning and construction process, in order to influence practices and decisions for that particular home. Efficiency Vermont and VGS also educate builders so that they will make energy efficiency an integral part of their continuing business. As a result, they are expected to require less support from VESH to build efficiently in the future.

Efficiency Vermont and VGS staff provide assistance in setting project energy objectives, perform preliminary plan review, determine an appropriate energy rating, and prepare detailed energy and economic analyses to assist builders in making educated decisions about energy efficiency measures. Contributions include comprehensive house plan review, recommendations for specific energy efficiencies, builder feedback and education, and on-site inspection and testing to help ensure the completion of an energy-efficient home that meets ENERGY STAR standards.

Efficiency Vermont has developed an array of premium technical services for builders and efficiency partners. These include:

- *Energy Policy Act, 2005 Qualification* – Successful participants automatically receive documentation to certify a home has met the energy efficiency standards of the Federal Energy Policy Act of 2005.
- *Green Building Certification* – Working in conjunction with the U.S. Green Building Council (USGBC), the Vermont Sustainable Jobs Fund, and Building for Social Responsibility, Efficiency Vermont and VGS have developed a top tier to the Vermont ENERGY STAR Homes service. This tier offers certification using a co-brand of USGBC's LEED-H and the local Vermont Builds Greener – LEED-H / VBG.
- *Modular Home Manufacturer Training* - within the region (not only in-state) Efficiency Vermont trains modular home manufacturing plant personnel to assemble homes to meet EPA ENERGY STAR standards.
- *Vermont Energy Code Training* – Working with building suppliers and other trade sponsors, Efficiency Vermont provides regional trainings to builders to understand and build up to, and beyond, the state's residential building energy standards. Vermont Gas Systems is a consistent sponsor within their service territory.
- *Specialized Training* – Efficiency Vermont offers training to a variety of building professionals and groups other than builders, including real estate professionals (for accreditation), technical schools and colleges, and town energy committees.

PROGRAM PERFORMANCE

Efficiency Vermont and VGS have seen significant growth in participation in VESH, increasing from 7 builders in 2000 to more than 200 in 2006. Of those 200, more than half are now repeat participants. Many early participants were from northwestern Vermont and tended to be larger-volume, more sophisticated builders. While this experience has reinforced Efficiency Vermont's certainty of the value of accelerating VESH services, it has also highlighted the diversity of the market and been a factor in its evolution. There is now a set of builders with experience in

energy-efficient building, looking for additional ways to upgrade and add value to their projects. There also is a set of generally smaller builders from throughout Vermont, not yet engaged in energy-efficient building. Achieving distributional equity across these builder classes and geographic regions is one of the primary objectives in Efficiency Vermont's new approach to providing Vermont ENERGY STAR Homes services in the next several years.

Since 2000, participation in the service has consistently accounted for at least 15% of the statewide market share. In 2006 the market share exceeded 30% (nearly 1 of every 3 new homes has actively participated in VESH, and has met or exceeded ENERGY STAR performance standards.)

With regard to specific penetration rates, the average number of verified energy-efficient lighting fixtures per home, for example, was 13 per household in 2006. And using a different measure, Vermont Gas experienced a 55% participation rate in CY 2006.

Participants' average savings in 2006 were over 2,100 kWh per year of electrical savings (at 13 cents per kWh = \$270 in electrical savings) and 28,056 mmBTU of heating and hot water fossil fuel savings (Vermont has a fuel mix of natural gas, oil, propane, and kerosene). Further, a VESH home typically saves 280 therms, compared to a non-VESH home.

LESSONS LEARNED

VESH has focused its efforts in residential new construction on builders and owner / builders, rather than on individual home buyers. Experience has shown that it is most effective to work with individual new-building projects while engaging in a range of market transformation strategies to build awareness of and demand for energy efficiency. These builders become program partners in leveraging this customer focus on quality into current energy savings, better building practices, and an ongoing and sustainable market for efficiency activity. Services include technical support and training and various incentives designed to assist builders in overcoming resistance to the financial risk of investing in energy efficiency.

VESH takes advantage of "bundled" incentive structures. The coupling of the ENERGY STAR performance requirements with a minimum quantity standard of lighting and appliance saturation in each home has proven very effective.

The opportunity for combining electrical savings with fossil fuel savings is a much stronger lever than if the two fuel sources were decoupled. This is evident statewide and especially within Vermont Gas Systems territory, where program implementation is shared and greater incentives are available.

Promoting a consistent statewide service capitalizes on the business nature of a statewide marketplace. Building professionals in Vermont operate statewide and thus consistency of service delivery is considered to be very important.

PROGRAM AT A GLANCE

Program Name: Vermont ENERGY STAR® Homes / Homebase New Construction

Targeted Customer Segment: Residential builders and home buyers

Program Start Date: 2001

Program Participants: 200 residential builders

Annual Energy Savings Achieved: Y2006= 2,161 MWh

Peak Demand (Summer) Savings Achieved:
Y2006 = 444 KW

Other Measures of Program Results to Date: ENERGY STAR-labeled homes in 2006 met a 30.7% market share statewide.

Budget: \$1.8 million statewide in 2006, plus an additional \$290,000 within VGS service territory.

Funding Sources: Efficiency Vermont is funded through an energy efficiency charge that is part of electric utility rates. The Vermont Gas portion of this program is funded through the customer rate base after regulatory scrutiny and approval.

Best Person to Contact for Information about the Program

- Blair Hamilton, Director, Efficiency Vermont
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*Residential New Homes Program
Exemplary Program*

***ENERGY STAR® New Homes Program
Rocky Mountain Power***

PROGRAM OVERVIEW

The Rocky Mountain Power ENERGY STAR® New homes Program promotes construction of energy-efficient homes based on the Home Energy Rating System (HERS). The main categories of measures modeled by HERS qualified software include building envelope upgrades, high performance windows, controlled air infiltration, high efficiency heating and cooling systems, tight duct systems and more efficient water heating equipment.

When the program began in 2005, Utah had a very small number of ENERGY STAR builders. Consequently, most efforts focused on establishing a presence in the market through builder and trade ally recruitment. Although training and education for builders and trade allies remained a key program element, program promotion activities in 2006 transitioned to a more aggressive consumer education campaign.

The program is designed as a “performance path” program, using HERS raters to perform inspections and verification. Several strategies were developed to capture the electric savings needed for a successful residential new construction program. These include:

- Requiring prescriptive measures to ensure electric savings,
- Instituting a strong account management team to recruit and service contractors, and
- Leveraging local market actors to ensure a sustainable delivery mechanism.

There are a total of up to \$760 in financial incentives available to builders for each home they build that meets the ENERGY STAR criteria. The program participants are also offered marketing support, including available funding for cooperative marketing opportunities.

The following measures are targeted under the program:

- High performance air conditioners (SEER 14 and above),
- Performance duct sealing,
- Locating duct systems in conditioned space,
- Testing and commissioning of air conditioners,
- Evaporative cooling systems,
- High performance windows,
- Envelope/insulation measures,
- Air/infiltration sealing (homes must pass EPA’ Thermal Bypass Checklist),
- ENERGY STAR appliances, lighting and ceiling fans

Rocky Mountain Power contracts with Ecos Consulting as the program manager.

PROGRAM PERFORMANCE

The Rocky Mountain Power ENERGY STAR New Homes Program has achieved significant results in a short time from the program's initiation in 2005. The program to date (through the 1st quarter of 2007) has certified 2,386 homes as ENERGY STAR rated. Associated energy savings have similarly shown a rapid increase—from 110 MWh in 2005 to 3,395 MWh in 2006.

The program relies on HERS raters. When the program began in 2005 there were very few HERS raters in the state of Utah—only one active provider. As a result of program efforts, there are now 7 HERS raters. The program similarly has greatly increased the number of ENERGY STAR builders in the state—from essentially zero in 2005 to a total of 100 today.

LESSONS LEARNED

The initial strategy developed was to promote long-lived measures and sustained air conditioning load reduction. Over the past few years there has been an explosive growth in air conditioning use in the western United States. As a result, utilities and vendors providing energy efficiency program are focusing more on air conditioning load than previously. This program plays a key role in helping to address and moderate this explosive load growth by ensuring that new homes are built to minimize cooling loads (through efficient envelopes and air/duct sealing, high performance windows, etc.) and to employ high efficiency cooling systems to meet cooling loads.

This program provides a good model of a program that achieved results quickly from its inception. Reliance on the ENERGY STAR platform and related new homes program features, such as HERS, allowed this program to be developed and implemented in a short time frame. The program has clearly met and exceeded its goals for influencing the new construction market, enlisting a large number of builders to participate in the program and yielding a high number of new homes that meet ENERGY STAR criteria.

PROGRAM AT A GLANCE

Program Name: Rocky Mountain Power ENERGY STAR® New Homes Program

Targeted Customer Segment: Residential builders and homebuyers

Program Start Date: 2005

Program Participants: 100 participating residential builders; 2,386 new homes have been ENERGY STAR rated via the program.

Annual Energy Savings Achieved: 3.4 GWh in 2006

Peak Demand (Summer) Savings Achieved: Not available.

Budget: \$1.95 million for 2007

Funding Sources: Utility ratepayers

Best Person to Contact for Information about the Program

- Jim Gilroy, PacifiCorp
- Phone: 503-813-5153

*Residential New Homes Programs
Honorable Mention*

***Iowa New Home Construction Program
Interstate Power and Light Co., an Alliant Energy Company
MidAmerican Energy***

PROGRAM OVERVIEW

The two primary investor-owned utilities in Iowa, Interstate Power & Light Co., (IP&L)—an Alliant Energy Company and MidAmerican Energy, together offer the Iowa New Construction Program in their respective Iowa service territories. The Iowa New Home Construction Program offers rebates for constructing energy-efficient single-family homes. The program offers two base rebate options for new single-family homes constructed in the applicable Iowa service territory using energy provided directly by one of these investor-owned utilities. The program as offered by IP&L is known as “New Home Construction,” and the program as offered by MidAmerican Energy is known as “EnergyAdvantage® New Homes Program.”

The rebate schedule and services are the same from each utility, with the exception that IP&L offers a bonus rebate for customers who also purchase and install some additional high efficiency equipment and appliances (described further below). There have been some changes from year to year. For example, the 2006 IP&L New Home Construction program offered three levels of rebates – base, bonus and super-bonus. The base rebate was awarded for homes that qualified for an ENERGY STAR rating and met the minimum building standards outlined by IPL including heating and cooling; insulation; lighting; water conservation and windows. Bonus rebates were available for installing premium efficiency heating and cooling equipment, clothes washers, refrigerators, dishwashers and lighting. The super-bonus was available to homeowners and/or builders who utilized all the bonus rebates. The 2007 IPL New Home Construction program offered 2 options to builders and homeowners including the prescriptive-based Builder Option Package or the performance-based ENERGY STAR qualified home.

The options for customers of both utilities are summarized below with the 2007-08 rebate schedules in effect:

- *Option 1: Builder Option Package (BOP)*
Builder must meet all requirements as specified for cooling, heating, thermostat, ductwork, infiltration, windows, doors, water heaters and ENERGY STAR products. The utilities provide an energy expert to inspect all homes before paying the BOP rebate. The rebate amounts are as follow (valid in 2007):
 - Heating and cooling customers: \$1500 rebate
 - Heating only customers: \$1000 rebate
 - Cooling only customers: \$500 rebate
 - Geothermal customers: \$1000 rebate plus a rebate of \$350 for a qualifying air-source heat pump

- *Option 2: ENERGY STAR® Qualified Home*
Specifications for ENERGY STAR qualified homes are available at the ENERGY STAR website. Builders must provide certification from a RESNET-certified Home Energy Rating System (HERS) rater showing the home meets or exceeds ENERGY STAR standards. Builders and/or customers are responsible for the cost of the HERS rating:
 - Heating and cooling customers: \$1750 rebate
 - Heating only customers: \$1250 rebate
 - Cooling only customers: \$500 rebate
 - Geothermal customers: \$1000 rebate plus a rebate of \$350 for a qualifying air-source heat pump

The IP&L program also includes bonus rebates to customers who install premium efficiency heating and cooling equipment, clothes washers, refrigerators and lighting. This option carries over from IP&L's earlier service options under its new homes program.

The utilities promote the program via a variety of outlets, including a program website, brochures and outreach to both builders and residential customers in the new homes market.

PROGRAM PERFORMANCE

In 2006 the Iowa New Home Construction Program achieved the 2nd highest market penetration of ENERGY STAR qualified homes among all states implementing this type of new homes program. In Iowa there were 5,866 ENERGY STAR qualified new homes in 2006 out of a total of 10,250 permits issued for single-family homes in Iowa---yielding a market share of 57%.

IP&L's individual results for 2006 were:

- 1,165 homes
- 3,302,088 kWh annual energy savings (electricity)
- 180,371 therms savings (natural gas)
- 1,952 kW (peak demand savings)

LESSONS LEARNED

The experiences of IP&L and MidAmerican Energy with their residential new homes programs reveals a number of attributes that have contributed to the programs success, including:

- Offering a consistent, coordinated program statewide. Customers served by either utility are eligible for the same package of services and rebates.
- Offering flexibility in meeting program requirements by making available different paths for compliance---in the present program format either a building option package or an ENERGY STAR® qualified home package.
- Making the program available for customers who receive energy from the utilities for heating-only, cooling-only, heating-and-cooling and geothermal applications.

- Providing bonus rebate packages to encourage purchase and installation of ENERGY STAR® products, including air-source heat pumps, boilers, central air conditioners, furnaces, lighting and refrigerators (an option offered by IP&L only).

PROGRAM AT A GLANCE

Program Name: Iowa New Home Construction Program: “New Home Construction” for Interstate Power and Light, Co.,--An Alliant Energy Company and “EnergyAdvantage® New Homes Program” for MadiAmerican Energy.

Targeted Customer Segment: Residential customers in the new homes market

Program Participants: In 2006 the combined programs in Iowa were responsible for 5,866 ENERGY STAR® qualified homes.

Other Measures of Program Results to Date: The market share in 2006 for ENERGY STAR® qualified homes was 57%.

Budget:
\$2,206,883
88% incentive – 12% administrative

Funding Sources: Utility ratepayers

*Summary data for Interstate Power and Light Co.,--
an Alliant Energy Company*

Program Start Date: Alliant Energy predecessor companies began new home construction programs in

the early 1990s. The program in its current format began in 2002.

Program Participants: 1,165 homes in 2006.

Annual Energy Savings Achieved: 2006 results: electricity savings of 3,302,088 kWh and. natural gas savings 180,371 therms.

Peak Demand (Summer) Savings Achieved: 1,952 kW in 2006

Best Person to Contact for Information about the Program

- Lisa Pucelik, IP&L
- Phone: 319-786-4283
- Email: LisaPucelik@alliantenergy.com

Program Contact at MidAmerican Energy

- John O’Roake, MidAmerican Energy
- Phone: 515-252-6764
- Email: JTORoake@midamerican.com

*Residential New Homes Program
Honorable Mention*

***New York ENERGY STAR® Labeled Homes Program
Long Island Power Authority***

PROGRAM OVERVIEW

Long Island Power Authority (LIPA) launched the New York ENERGY STAR® Labeled Homes Program (NYESLH) in 2003. Since the program's inception LIPA has made considerable progress in building the NYESLH infrastructure so that presently all key components of successful implementation are in place. These components include:

- customer contact services with a toll-free phone number,
- a website where consumers can access information about the Program or request information and a list of participating NYESLH Builders in their area;
- technical training and support;
- software systems;
- Home Energy Rating System (HERS) training;
- field and management operations;
- a core group of participating builders and raters; and
- strong organizational relationships in the industry, in particular with the New York State Builders Association (NYSBA) and with the Long Island Builders Institute (LIBI).

The Program is funded and managed by LIPA, which has contracted with Conservation Services Group (CSG) for program design and development assistance; policy setting; implementation; partner recruitment, training, and support; quality assurance/control; and marketing. Currently all program training, including HERS and in-field, is provided by CSG. Optimal Energy is contracted with LIPA to set and monitor program metrics, assist in the establishment of policies and goals, and advises on overall Program design. Hudson Valley Community College will take over the HERS training once its contract is in place.

NYESLH Builders are those who voluntarily agree to build new homes that meet the ENERGY STAR Labeled Homes performance standard of a minimum expanded Home Energy Rating System (HERS) score of 84 or the National Builder Option Package (BOPS). NYESLH's principal objective is to transform residential construction markets. The program is funded through the LIPA Clean Energy Initiative and is built upon the ENERGY STAR platform of the U.S. Environmental Protection Agency and the U.S. Department of Energy. Additionally, several Long Island townships are phasing in ENERGY STAR as part of their residential building codes.

Table 1 gives the incentives available to builders participating in the program. The "cash bonus incentive" was for a limited period (2006) only as described further in the "Lessons Learned" section below.

Tier	Expanded HERS Score	KWh Savings Requirement	Current LIPA Incentive	Additional Cash Bonus Incentive	Total LIPA Incentive
1	84-86.9 or BOP	500	\$1,000	\$1,000	\$2,000
2	87-88.9	500	\$1,250	\$1,000	\$2,250
3	89 and above	500	\$1,500	\$1,000	\$2,500
4 "Display Home"	Any of the above	650	\$3,000	\$1,000	\$4,000
5 "Model Home"	Any of the above	650	\$3,500	\$1,000	\$4,500

To assist builders to promote the program, LIPA offers advertising incentives for cooperative advertising. The amount of the incentives available varies according to the number of NY ENERGY STAR Homes built and labeled per calendar year. The amounts range from \$10,000 for 1-20 homes per year to a maximum of \$50,000 for more than 90 homes per year.

On Long Island, a dozen or more nationally-certified Home Energy Rating System (HERS) energy raters work with builders to conduct plan reviews, let them know what it will take to achieve the New York ENERGY STAR Labeled Homes standards, train their subcontractors on what they will need to do, provide technical assistance during construction, conduct inspections, carry out blower door and duct blaster performance testing of the home upon completion and then generate the necessary paperwork to document compliance. Officials in the local building departments have specified the forms they need to see to document compliance. LIPA provides oversight, tracking and quality assurance monitoring to ensure HERS rater adherence to the national and New York standards. LIPA continues to support these and other beyond-code efforts through their mandate to transform their markets to become more energy efficient. While building code officials may still conduct some of the insulation or other energy-related inspections, they will undoubtedly welcome being relieved of any obligations to test and document adherence to ENERGY STAR. Additionally, focusing on fire, health and safety issues in each house is a much higher and best use of code officials' time.

As an electric utility, LIPA justifies its expenses on ENERGY STAR Homes primarily through the electricity that participating homes save. By setting lighting and appliance kWh savings standards and utilizing the HERS rater infrastructure to verify adherence to these standards as part of the ENERGY STAR Homes process, LIPA is able to justify financial support of the ENERGY STAR Labeled Homes program. Code officials would not necessarily be willing to count light fixtures or track appliance model numbers, but HERS raters can charge for this service and support these efforts. However, LIPA will only be able to justify providing financial support to what is mandated by law. After a few years helping foster the code transition, they will need to raise the bar again for their new homes program and provide incentives for even more efficient homes, with the ultimate target being "zero energy homes."

On Long Island, the cost to upgrade the average new home to ENERGY STAR Home levels is estimated to be about \$4,000, which covers the raters fees (generally in the \$500-\$800 range depending on house size and complexity) and the cost for the necessary improvements. However, the savings that will accrue from this investment will more than pay for the upgrades from the first year the house is occupied. Specifically, financing \$4,000 as part of the house

price will add about \$300 per year to the mortgage payments. However, annual energy cost savings of \$1,150 will more than off-set this payment increase, resulting in about \$850 positive cash flow starting in the first year.

PROGRAM PERFORMANCE

As program administrator, LIPA is committed to providing top quality field and sales training, technical and programmatic support, quality assurance/control, incentives, and comprehensive marketing services to the LI NYESLH builders, raters, LIBI members, town officials, and consumers. LI NYESLH Program accomplishments include:

- Receiving LIBI's full backing and support; LIPI now includes energy efficiency technical training offerings for members and non-members, which includes classes for HERS raters, builders, and trade contractor;
- Signing 53 builders into the program;
- Increasing the rater network from 1 to 14 raters—reporting to three providers;
- Signing 8 of the top 10 production builders into the program;
- Distributing \$298,750 in incentives to builders;
- Adding a multifamily component; and
- Getting ENERGY STAR performance criteria incorporated into local building codes.

LESSONS LEARNED

LIPA's main priority is to provide consistent, supportive and assertive program implementation so that the NYESLH infrastructure can facilitate a significant increase in the number of new ENERGY STAR Labeled Homes. Along the way it became apparent that the Long Island market presents some unusual challenges that LIPA addressed as described below.

First, the new housing market has been so heated that the ENERGY STAR promise of market differentiation has been a difficult sell. It became clear to LIPA that the program's strategic outreach message needed to change in order to help address most builders' main concern—getting help to get required new building permits. LIPA discovered that builders don't necessarily need help selling their product (new homes), but greatly benefit from easier and faster permitting for their projects. LIPA accordingly shifted its emphasis from ENERGY STAR messages as good public relations for builders to that of a means for them to facilitate permitting. Such an outcome was possible because many towns in LIPA's territory prefer environmentally sensitive and energy-efficient developments, and the ENERGY STAR label addressed this concern directly. Program staff adopted this message and incorporated it into recruitment activities to increase builder participation.

The second major challenge in LIPA's service territory was an insufficient network of HERS raters. LIPA has worked to build the capacity of the existing raters and rating providers through technical and marketing support, additional training and encouraging pooling of resources for large projects. At the same time, LIPA has encouraged new providers to enter the Long Island

market and is working with participating HERS providers (and their HERS raters) to achieve a sustainable HERS network. Providers need well trained raters; raters need a demand for their services; and builders need an expanded and competitively priced rater network. To address these needs, LIPA instituted several innovations, in addition to the existing incentives, to build-up the rater network and to increase production in, including:

- The development of an apprenticeship program for raters who pass the HERS test and desire intense training over and above the HERS classes and initial ratings. New raters work under the tutelage of LIPA's implementation contractor functioning as their short-term provider.
- Coupons for builders, at a value of up to \$3,000, which are applied toward the cost of rater services to encourage builders to learn about the labeling process and its benefits while reducing their financial risk.
- At LIPA's request, its implementation contractor can step in to perform ratings. This will only happen if for any reason existing raters are not able to provide the rating but it provides LIPA and the program builders another rating option.
- A limited time cash bonus incentive (\$1000) was offered in 2006 to builders in the final phases of construction willing to bring a residence up to ENERGY STAR standards or who exceed their average HERS rating for past ENERGY STAR labeled homes. The bonus was to help offset the additional cost of becoming ENERGY STAR compliant.

The third major challenge was the quick adoption of a phase-in process of ENERGY STAR criteria as code requirements by the townships of Babylon and Brookhaven with others to follow. LIPA has working with LIBI, The New York Builder's Association (NYSBA), and town and code officials to ensure that smooth, effective and streamlined inspection and labeling processes are established and effectively communicated.

LIPA's efforts at working with LIBA, traditionally the group most vocal and active in opposing code changes for improved energy efficiency, have achieved dramatic results. Evidence of LIBA's support is clearly expressed by LIBA Executive Vice President Bob Wieboldt in a letter to the U.S. Environmental Protection Agency justifying LIBA's actions to endorse ENERGY STAR construction standards. Wieboldt noted the following reasons:

- The proven paybacks for homeowners are too rapid to ignore;
- The building industry must join broader efforts to reduce fossil fuel dependency,
- Establishing ENERGY STAR code requirements creates a market volume large enough to achieve economies of scale for applicable equipment and technologies—leading to lower costs and greater availability;
- Market transformation efforts of a voluntary program approach was working slowly; and
- LIBA is part of a significant coalition of builders and trade allies pushing for such requirements because promoting uniform standards is much preferred than possibly having to deal with many separate versions of codes.

LIPA and its NYESLH contractors recognize the critical need to address the environmental and societal costs of energy use; reducing energy use in new homes by 20% compared to standard practice is clearly a step in the right direction. LIPA's experience also demonstrates that moving

local codes to ENERGY STAR levels can be accomplished at no taxpayer expense while boosting the local economy through HERS energy rater job creation. Long Island has proven that necessary changes can be made; *and* that the local home builders can be allies in the change process.

PROGRAM AT A GLANCE

Program Name: Long Island New York ENERGY STAR® Labeled Homes Program

Targeted Customer Segment: Home builders and home buyers.

Program Start Date: 2003

Program Participants: In 2006, 342 homes received ENERGY STAR ratings.

Annual Energy Savings Achieved: For 2006, the annual energy savings was: 972 MWh.

Peak Demand (Summer) Savings Achieved: For 2006, the peak demand savings was: 0.98 MW

Other Measures of Program Results to Date:

- 53 builders are participating.

- Have increased the rater network from 1 to 14 raters.
- 8 of the top 10 production builders have signed into the program;

Budget: \$3.6 million in 2007.

Funding Sources: Long Island Power Authority's Clean Energy Initiative

Best Person to Contact for Information about the Program

- Gary Krieger
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*Residential New Homes Programs
Honorable Mention*

***ENERGY STAR® Homes Program
Oncor Electric Delivery***

PROGRAM OVERVIEW

Oncor Electric Delivery launched the ENERGY STAR Homes Program in 2001 with the goal of helping reduce its annual summer peak energy demand in compliance with the Texas Electric Choice Act of 1999. The principal strategies and activities that Oncor Electric Delivery ENERGY STAR Homes Program employs to increase the number new homes that meet ENERGY STAR requirements are described below.

Financial Incentives for Both Homebuilders and HERS Raters

The Program incorporates a two-tiered incentive payment structure to builders, based on the Home Energy Rating System (HERS) rating of submitted homes. The 2006 program incentives were \$200 for each home achieving a HERS score of 86 or 87, and was at least 15% above Texas code, and \$250 for each home with a HERS score of 88 or higher. This tiered approach has helped the Program move builders to construct more energy efficient homes, and has also favorably impacted the program's overall cost-effectiveness. The program also strongly encourages participating homebuilders to leverage the ENERGY STAR brand by tying the number of incentive payments awarded to the builders' use of the ENERGY STAR in their own marketing and sales efforts, including print advertisements and Web sites.

Turnkey Homebuilder Support

Each builder is assigned a program account manager and is provided with a resource kit that includes customizable marketing and sales tools. Account managers provide ongoing support as needed and also deliver builder sales staff training sessions to teach participants how to present compelling sales messages to homebuyers about the benefits of ENERGY STAR qualified homes. Builders and HERS raters also receive a quarterly newsletter, frequent fax or e-mail updates with marketing tips, opportunities to leverage program marketing activities, and upcoming training sessions.

Ongoing Recruitment of Additional HERS Raters

Potential candidates are identified and offered training opportunities to become a certified HERS rater. Scholarships are provided to rater candidates in remote geographic areas to attend the courses in larger markets. The program also works closely with the Texas Home Energy Rater Organization (TXHERO), which the program helped to establish during 2003.

Collaboration with Key Market Allies to Demonstrate the Value of ENERGY STAR

The Program strives to improve the infrastructure and knowledge base of key market actors in the residential housing industry (real estate agents, mortgage lenders, and manufacturers of building materials) through intensive training and outreach efforts. The program offers an accredited mandatory continuing education course, which was attended by 75 real estate agents in 2006. Program staff also works closely with the Texas Veterans Land Board (TVLB), which currently requires ENERGY STAR qualification for all new home loans. Additionally, program staff members maintain contact with manufacturers and distributors of building materials that can help homebuilders achieve ENERGY STAR qualifications. All potential allies are provided with an Ally Kit, which includes information about ENERGY STAR and ENERGY STAR qualified homes.

Technical Support and Guidance for Homebuilders

Each year the program provides builders and raters with specific types of support as needed within the marketplace. For example, in 2006 the program took steps to work with homebuilders and HERS raters to enable a smooth transition to the new ENERGY STAR specifications. Activities included a series of intensive technical training sessions on the new specifications and the ENERGY STAR advanced lighting package. Program staff also provided house plan analysis support to assist builders and raters in determining the most cost-effective upgrade packages that would meet the new guidelines.

Quality Assurance/Quality Control

The program implemented a comprehensive quality assurance and control (QAQC) program during 2004. Complete testing is performed on a selected representative sample of homes submitted to the Program. This testing is performed by an independent, fully-accredited third-party organization. The QAQC program provides another layer of assurance to Oncor Electric Delivery and to homebuilders that their homes meet ENERGY STAR specifications and that HERS Raters are following Residential Energy Services Network (RESNET) standards. All results are shared with participating homebuilders.

PROGRAM PERFORMANCE

The Program began with the construction and delivery of 44 ENERGY STAR qualifying homes in its initial year, 2001. However, it experienced significant growth in its second year (2002), delivering over 6,400 qualifying homes from 27 participating builders. Since 2001, participating homebuilders have constructed and delivered over 60,000 ENERGY STAR qualified homes in the Oncor Electric Delivery service territory, which comprises portions of North, Central, and East Texas. This sustained growth has been the direct result of the continued expansion and refinement of the range of services offered to participating builders and HERS raters.

Through the Oncor Electric Delivery ENERGY STAR Homes Program, 75 builders constructed and sold more than 13,000 ENERGY STAR qualified homes in the Oncor Electric Delivery

service territory during 2006. These homes yielded more than 28 MW and approximately 25 million kWh of annual energy savings for the utility

In 2006 ENERGY STAR qualified homes accounted for approximately 27% of the total new home market in the Dallas/Ft. Worth area. The program also successfully increased market penetration of ENERGY STAR qualified homes in central and eastern Texas during 2006. The 25 participating homebuilders in Austin, Temple, Killeen, and Tyler, Texas constructed almost 2,000 ENERGY STAR qualified homes in 2006, more than twice the amount constructed in these areas during 2005.

The program also has been very successful in actively motivating homebuilders to build above and beyond ENERGY STAR specifications. One of the key elements in this success has been to offer a higher builder incentive for homes that exceed the minimum ENERGY STAR specifications. As a result, the Program has attracted a large proportion of large homes with higher than anticipated HERS scores, which have in turn have produced a higher kW savings per incentive dollar than smaller homes. For example, the 2005 program produced approximately 10,000 kW more savings than was projected while spending \$797,000 less than was budgeted.

LESSONS LEARNED

The goal of the Oncor Electric Delivery ENERGY STAR Homes Program is to create sustainable market conditions that lead to a continuous supply of energy-efficient homes and perpetual improvements in home performance. All program activities are centered on this goal. Specific objectives for 2007 include the delivery of over 10,000 ENERGY STAR qualified homes, continued expansion into key target markets, increasing the use of the ENERGY STAR logo in homebuilders' sales and marketing activities, and retaining a high percentage of homebuilder partners following the recent transition to the new ENERGY STAR specifications.

Each year the program has continued to innovate and expand its range of services to meet the needs of participating builders. These innovations include:

- Tying the number of financial incentives awarded to the builder's commitment to use the ENERGY STAR branding;
- The comprehensive role of the program's account management team, enabling the program to develop effective working relationships with participating builders;
- The program's key role in bringing HERS raters together to form the TXHERO organization and its continuing role in providing support to the organization;
- The implementation of a comprehensive QA/QC initiative, providing builders with an additional layer of assurance;
- Providing a full range of training, marketing and technical support to participating builders and raters as needed in a rapidly-changing marketplace; and
- Effectively bringing in key market allies to further the program's market transformation goals.

PROGRAM AT A GLANCE

Program Name: Oncor Electric Delivery ENERGY STAR® Homes Program

Targeted Customer Segment: Residential new construction

Program Start Date: 2001

Program Participants: 14,000 homes in 2006; over 60,000 homes since 2001

Annual Energy Savings Achieved: 25.18 GWh annual savings from 2006 program

Peak Demand (Summer) Savings Achieved: 28 MW from 2006 program

Other Measures of Program Results to Date: 27% market share of total new home market in Dallas/Ft. Worth area

Budget: \$5.2 million in 2006.

Funding Sources: Public benefits program charge established by the Texas Legislature.

Best Person to Contact for Information about the Program

- Kim Hooper, Program Manager, Oncor Electric Delivery
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*Residential New Homes Programs
Honorable Mention*

***Guarantee Home Program
Tucson Electric Power***

PROGRAM OVERVIEW

The Tucson Electric Power (TEP) Guarantee Home Program is a residential new construction program based on a foundation of applied building science. The program assists Tucson builders in producing high-performance homes. Program homes are designed to be healthy, safe, comfortable, durable and affordable to operate. Each home is expected to provide an average kW peak reduction of 2.6 kW compared to typical new homes.

TEP provides on-site training and technical assistance from design to completion. TEP employees complete HVAC load calculations on every model home, recommends equipment sizing, provides quality control inspections at framing; insulation and final; conducts duct-blast testing; blower-door testing and pressure testing and ultimately guarantees the performance of the home upon completion. The program standards include those items that provide the biggest benefit for the lowest cost; it does not include high-cost practices that provide little incremental benefit.

TEP has provided training and education about building science and the whole-house approach to building homes to homebuyers, builders, sub-contractors, and realtors/builder sales agents. Training is aimed at increasing the applied knowledge of building science and energy-efficient building practices to transform the market and improve construction practices in the Tucson area.

Guarantees cover a pre-determined average daily cost for heating and cooling for a 5-year time period. TEP also guarantees comfort for 5 years. All program homes completing certification qualify for a special reduced electric rate available only to customers who construct or purchase homes meeting the Guarantee Home Program standards. The reduced electric rate stays with the home forever and transfers to new owners in the event the original owner sells the home.

The target market is composed of all newly-constructed single family homes that receive electric service from TEP. This includes production home developments, town home and condominium projects where individual units are sold to homeowners, and custom home projects; eligible residences must be individually metered. In order to be eligible for the Guarantee Option and its benefits and incentives, homes must have electric space and water heat. The program is promoted to all builders within the TEP service territory

PROGRAM PERFORMANCE

To date (through 2006) there are 152 custom builders and 98 production builders participating in the Guarantee Program. In addition, 239 owner/builders have chosen to build their own

residences to the Guarantee Program standards. A total of 15,430 homes have been committed and 7,118 homes have been completed to program standards since program inception. The committed homes represent 53.8% of the Tucson market in 2006. Participation levels in the Guarantee Program continue to grow as more national builders choose to use this program in large subdivisions. National home builders like Pulte, Lennar, Meritage, KB Home, Standard Pacific, Richmond American and DR Horton are now building residences to the Guarantee Program standards in the Tucson market.

Program Participation and Market Share by Year

Year	TEP Service Area Building Permits	Actual Commitments to GHP	Percentage of Guarantee Homes to TEP SA Total
1997	Not Tracked	36	Pilot Program
1998	Not Tracked	90	Pilot Program
1999	Not Tracked	562	1st Year Actual Program
2000	6584	1422	21.5%
2001	6430	1433	22.3%
2002	6324	2047	32.3%
2003	6500	2178	33.5%
2004	6100	3189	52.2%
2005	7887	3862	49.0%
2006	6198	3334	53.8%

The Guarantee Program reduces summer utility peak by 2.6 kW (53%) for each home built to program requirements over homes built to the Model Energy Code (MEC). The Guarantee Program also offers significant savings in energy consumption (kWh) over MEC. The electricity savings under the Guarantee Program standards is 2,814 kWh and represents the difference in total heating and cooling kWh between Guarantee homes and homes built to MEC standards

Program to date energy savings on completed homes are estimated to be 35.2 GWh (1997-2006). Program to date demand savings on completed homes is 41 MW.

LESSONS LEARNED

After nearly 10 years of program experience, Tucson Electric Power has observed a number of positive changes in the market for new homes, including:

- The greater number of consumers informed and educated about the benefits of energy-efficient homes has created a demand pull in the market;
- Residential new construction practices have improved;
- There are greater numbers of energy-efficient homes being built; and
- Customers are realizing significant energy savings as a result of its efforts.

TEP also offers the following lessons learned from its experiences and improvements to its program over the years:

- Quality control inspections and test results are necessary to be able to guarantee performance.
- There must be a continuing effort of education, training, and communication among key program stakeholders---builders, trade allies and home buyers.
- Do not assume that qualifying products are installed “according to manufacturer’s recommendation;” independent verification is necessary.
- This type of program---one that works within a large and well-established industry--requires development of strong and lasting partnerships with the industry.
- Strong, consistent management support to fund and implement the program is critical.

PROGRAM AT A GLANCE

Program Name: Guarantee Home Program

Targeted Customer Segment: Residential home builders and buyers

Program Start Date: Pilot program began in 1997; 1st full-scale program year was 1999

Program Participants: 7,118 residences completed to date; 15,430 residences committed to date.

Annual Energy Savings Achieved: 2,814 kWh savings/residence; 35.2 GWh cumulative savings (1997-2006)

Peak Demand (Summer) Savings Achieved: 2.6 kW peak demand reduction/residence; 41 MW peak demand reduction cumulative impact (1997-2006)

Other Measures of Program Results to Date: 54% market share of Guarantee Home Programs of new homes constructed in 2006.

Budget: Not available.

Funding Sources: ratepayer funded

Best Person to Contact for Information about the Program

- Daniel Hogan, Residential Account Manager
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