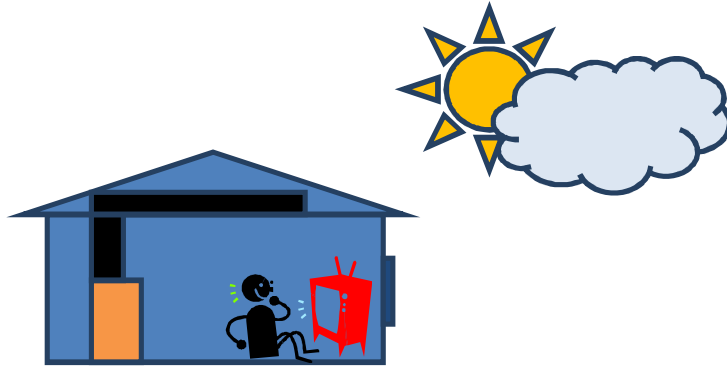




Home Performance for HVAC Companies

What is Home Performance and Why is it Important for HVAC Contractors?

Home Performance is a systematic approach to analyzing and improving the interior comfort, air quality, durability and energy efficiency of existing homes based on an understanding of how various household systems interact. For example, if a new air conditioning system fails to provide even cooling of every room in a home, the installation contractor may try adding more registers to the problem rooms, increasing airflow rates, or increasing the size of the cooling plant. These tactics can mask the real problem, which could have more to do with outdoor shading or the integrity of the building envelope. Armed with the right diagnostic tools and an understanding of basic building science principles, contractors can avoid these call-back situations by making sure in advance that new equipment is going into a building that won't fight against it. In other words, a high-efficiency heating or cooling system will not be effective if it is attached to an inferior distribution system in a building without a properly sealed building envelope. HVAC contractors who routinely swap out boxes without looking at the bigger picture could be walking away from a lucrative business opportunity.



Systems Affecting a Home's Performance

- Envelope (insulation, air leakage, windows, doors)
- Mechanical (heating plant, cooling plant, ventilation)
- Heating and Cooling Distribution and Controls
- Lighting and Appliances
- Weather (solar gains, shading, wind)
- Occupants

What is the Difference Between Home Performance and Energy Efficiency?

Home Performance is grounded in energy efficiency, but also emphasizes the importance of improving the comfort and durability of the home while also ensuring the health and safety of its occupants. HVAC contractors are selling comfort first and foremost. With proper tools and training, contractors can diagnose a wide range of Home Performance problems and fix them.

What Are Whole-House Retrofits?

The whole-house approach uses building science concepts supported by diagnostic testing to provide homeowners with a comprehensive road map for home improvements. This road map helps to prioritize the customer's home improvement decision-making and maximizes the impacts of the investment they are making. For example, replacing an old heating and air conditioning system with new high-efficiency equipment may sound like a good idea, but insulating the house and sealing the ductwork first will reduce the loads on the building and ensure that conditioned air is not lost on the way to the rooms. Using a whole-house approach, contractors can show their customers how to maximize the effectiveness of their home improvement dollars and ensure that they achieve the efficiency levels they are paying for.

Why Become a Home Performance Contractor?

The opportunities have never been greater for building trades contractors to expand their services to include whole-house Home Performance retrofits. Rebate programs that encourage single-measure retrofits are on the wane and are increasingly being replaced by performance-based whole-house incentive offerings. For example, the statewide Energy Upgrade California program¹ requires a whole-house approach to access the higher tiers of incentives, which are based on the predicted energy savings for the package of measures being installed. Table 1 lists the consumer incentives available through Southern California Edison, Southern California Gas and San Diego Gas and Electric for this program.²

Table 1: Performance-Based Incentives for Energy Upgrade California

Predicted Energy Savings	Consumer Incentive
10-14%	\$1,250
15-19%	\$1,500
20-24%	\$2,000
24-29%	\$2,500
30-34%	\$3,000
35-39%	\$3,500
40% or more	\$4,000

While the availability of rebates provides a good incentive to enter the Home Performance market now, there are also strong arguments to be made for creating a sustainable business model around offering whole-house services. Consumer awareness of the diagnostic tools used by Home Performance contractors like blower doors and infrared cameras is higher than ever. Many homeowners expect to see these kinds of tools used when a professional arrives at their home to offer them advice on the energy efficiency of their homes. In addition, with the ongoing downturn in demand for new construction, more homeowners are choosing to stay put and invest in upgrades to their existing homes instead of purchasing new homes. In turn, builders and remodelers are looking to the retrofit market as an alternative source of new business. HVAC contractors are uniquely qualified to collaborate with builders and remodelers to offer whole-house services.

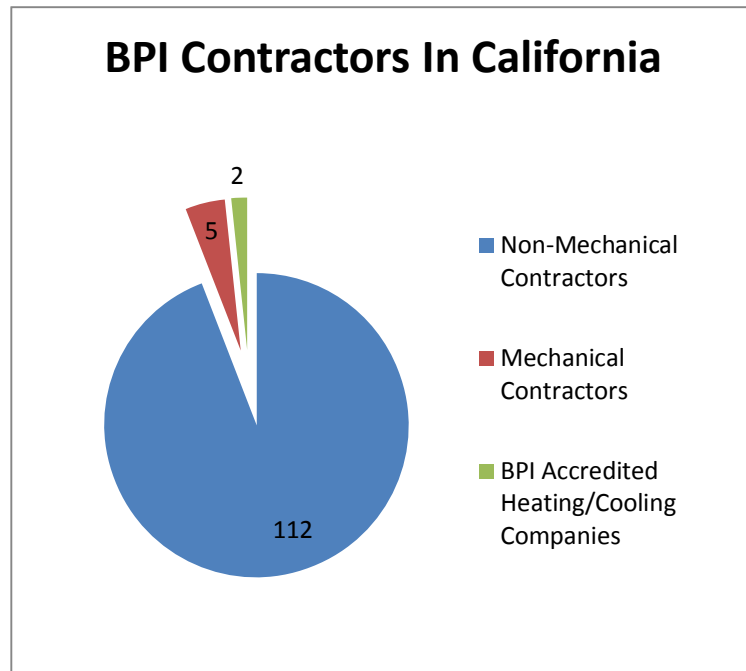
Californians are deeply aware of the need for energy efficiency to reduce home operating costs and to reduce their personal environmental (carbon) footprint. Home Performance improvements can address these issues without compromising lifestyle or comfort, creating a win-win situation for homeowners and contractors alike.

¹ Available incentives, contractor qualifications and program rules may vary from one sponsoring utility territory to another.

² Incentive levels are subject to change. Check with sponsoring utility for current incentive offerings.

California's Whole-House Retrofit Market and Current Market Trends

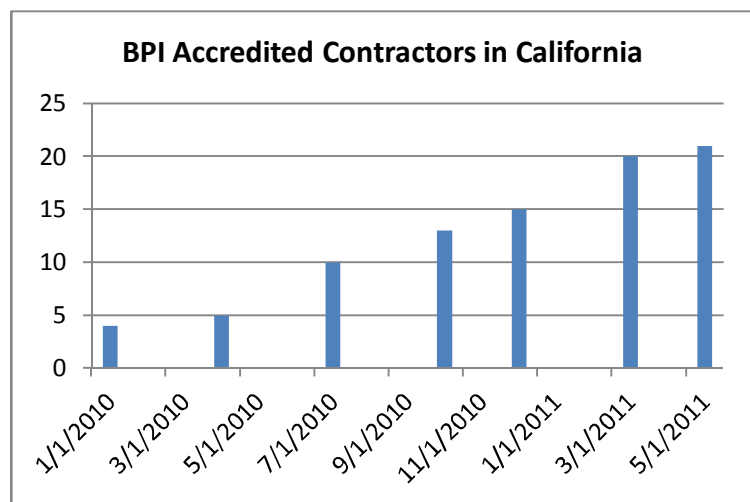
The Building Performance Institute (BPI) offers certification testing for technicians working in the construction trades, weatherization, and Home Performance industries. BPI also offers accreditation to companies that employ BPI-certified technicians and agree to adhere to rigorous technical standards and best practices in business. California's statewide energy efficiency incentive program, Energy Upgrade California, requires companies to employ BPI-certified staff and take advantage of the Advanced Upgrade Package of incentives.

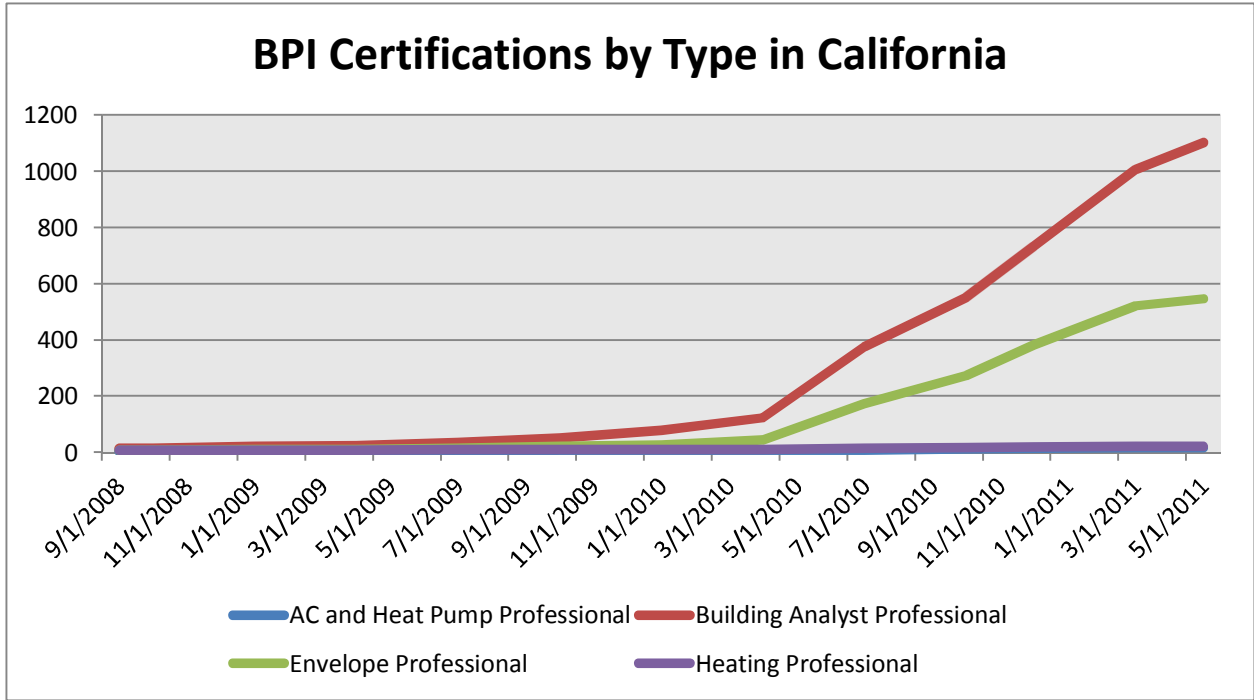


There are currently 119 companies in the state of California with BPI-certified technicians on staff. Of these, only 20 are BPI Accredited contractors and five of those are mechanical contractors by trade. This represents a rapid growth in BPI-certified companies in the state over the past few years, but the mechanical trades are lagging behind envelope, weatherization and general whole-house practitioners in adopting the Home Performance service model. BPI offers advanced certifications in the specialization areas of Envelope, Heating and AC/Heat Pump. Ironically, none of the five BPI Accredited mechanical

contractors in California are also certified as Heating or AC/Heat Pump Professionals. There are two companies in the state with these certifications, both of which are general whole-house practitioners.

Participation rates in the Energy Upgrade California program show similar trends. For example, in SDG&E's program, only six of 33 currently participating contractors are mechanical contractors by trade. Of those, only two are participating at the Advanced Upgrade level.





There is a wealth of opportunity for the HVAC trades to enter the Home Performance market, which remains virtually untapped throughout California. There are a variety of options for practicing HVAC contractors to get involved in Home Performance services and take advantage of the program incentives that are currently available.

California's HVAC Retrofit Market

Nearly 600,000 residential central AC units are sold in California annually.³ Approximately two-thirds of these are retrofit units. Since 2002, fewer than 20% of the central AC units sold in California are Energy Star rated. This means that more than 80% of the AC units operating in California's existing homes are below Energy Star level. In addition, studies have shown consistently that one-half to two-thirds of all newly installed central AC systems operate at less than their rated energy efficiency due to improper airflow, charge and duct system inefficiencies. These inefficiencies also contribute to other performance issues including uneven or inadequate heating and cooling, indoor air quality issues, and pressure imbalances. By using a whole-house approach, Home Performance contractors are uniquely qualified to create high-performance living environments that solve these problems while saving customers money on their energy bills.

Opportunities for California Contractors

There are several ways for contractors who are new to Home Performance work to tap into publicly funded incentive programs that can help them jump-start the Home Performance component of their businesses. Downstream incentive programs are made available to consumers to reduce the cost of energy assessments and improvement work. These consumer incentives, coupled with energy improvement financing options, can help motivate sales and encourage higher average tickets. Midstream incentives target contractors by offering discounted services and cash rebates to help defray the investment costs associated with gearing up to become a Home Performance contractor and maintaining this business model over time.

Historically, the most successful Home Performance contractors across the country have created businesses that wholly integrate the whole-house approach into every aspect of the company's operations. As you begin to put a business plan together around this model, you will find that opportunities exist to make the model sustainable and profitable over the long term even without the need for incentives. Strategies may include tapping into existing customer lists, differentiating your company from your competitors through marketing, access to federal tax incentives, the ability to offer new and advanced technologies (e.g. renewable energy and green building), and creating long-term customer relationships as a trusted resource for all of their home improvement needs.

The following two tables summarize publicly funded incentive programs that are currently available to contractors and consumers in Southern California. Additional opportunities appear to be on the horizon as efforts are under way to support additional incentives for cooperative marketing for participating contractors, and low interest consumer financing products to help homeowners pay for energy improvements. As new programs are introduced, program details will be added to Energy Upgrade California's website, which will serve as a portal for contractors and consumers to obtain the most up-to-date information on opportunities at the regional and state levels.

³ Pulliam, Richard. "California Residential Market Share Tracking: HVAC 2005." Produced by ITRON for Southern California Edison, 2006.

Table 2: Financial Incentives for California Home Performance Contractors

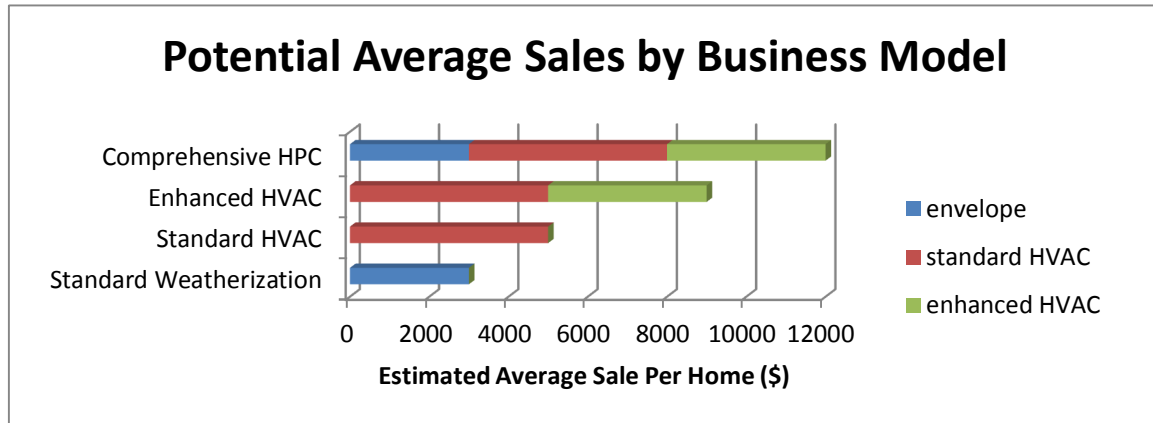
Program Name	Sponsor	Contractor Incentives	Eligibility
Clean Energy Workforce Training Program (CEWTP)	State of California	70% reimbursement toward cost of new employee training	Available to Efficiency First member companies
Energy Upgrade California	CEC, CPUC with SCE/SoCal Gas and SDG&E	Training, listing in contractor directory, marketing support	Available to qualified contractors who sign program Participation Agreement
LA County HVAC Pilot Program	SCE/SoCal Gas, LA County	Training on building science and HVAC quality installations	Limited enrollment for pilot
Co-op Marketing	CEC and CPUC	Co-op marketing funding	Coming soon?

Table 3: Financial Incentives for California Homeowners

Program Name	Sponsor	Consumer Incentives	Eligibility ⁴
Energy Upgrade California (Basic Upgrade)	CEC, CPUC with SCE/SoCal Gas and SDG&E	Up to \$1,000 in rebates for prequalified measures	Available through qualified contractors completing 3-day training and signed Participation Agreement
Energy Upgrade California (Advanced Upgrade)	CEC, CPUC with SCE/SoCal Gas and SDG&E	\$1,250-\$4,000 for whole-house improvement packages achieving 10-40% energy savings	Available through qualified contractors that employ BPI-certified staff and sign program Participation Agreement
Retrofit LA	LA County	Additional \$500 for Advanced Upgrade packages	Must achieve 20% savings or better
Chula Vista Home Upgrade Carbon Downgrade	City of Chula Vista	Up to \$4,000 in addition to EUCA rebate	Additional rebate depends on % savings achieved

One of the key benefits of offering a Home Performance service model is that it opens the door to bigger jobs and higher average sales. If your average residential retrofit job selling standard HVAC packages is in the \$3,000-\$5,000 range, you can expect to double that take per job when selling higher efficiency equipment, distribution system improvements and upgraded controls using Home Performance diagnostics and building science to seal the deal. Add another \$2,000-\$5,000 in improvements to the building envelope and you will be in the \$10,000-\$15,000 average ticket range that most successful Home Performance Contractors report. The example scenarios shown on the following chart illustrate how a comprehensive sales package can add up. With the high cost of pulling permits in southern California, it only makes good business sense to try to complete as much work as possible in one package. Home Performance contracting makes that possible.

⁴ Contractor requirements may vary from one utility to another. Verify specific program eligibility qualifications with the sponsoring utility.



In addition to the program orientation and technical trainings offered to get contractors started in the Home Performance business, EUCA also offers quarterly workshops for participating contractors covering topics related to sales, marketing and business development. These workshops are designed to assist contractors who are in the program to build their businesses over time for long-term success.

How Can Public Policy Initiatives Drive Home Performance Contracting Growth in California?

In general, public policy can have a major impact on the success or failure of a state’s ability to establish a strong Home Performance market and infrastructure. New York State is a prime example of this. Using statewide public awareness campaigns and consumer incentives, and providing contractor support similar to the benefits available through Energy Upgrade California, New York’s Home Performance industry has grown from non-existent in 2001 when the program launched to more than 300 active BPI Accredited companies today.

At this time, federal and state policy initiatives are supporting the incentive programs listed in Tables 2 and 3. Funding for these programs comes from a combination of the following sources:

- Federal American Recovery and Reinvestment Act (ARRA) of 2010 - Energy Efficiency and Conservation Block Grant (stimulus package)
- U.S. Department of Energy Discretionary Funds (Energy Efficiency and Conservation Block Grant)
- California Energy Commission (CEC)
- Los Angeles County
- San Diego County

It is important to note that program funding may only be available for a limited amount of time, depending on the funding source. Programs funded by the American Recovery and Reinvestment Act (ARRA), for example, are scheduled to expire on a specific timeline. Most ARRA projects will be complete by the end of 2012. Other programs may have funding from a limited pool of money, and these programs will typically close when the pool of funds has been depleted. For these reasons, Home Performance businesses should be structured to grow and generate profit with or without program incentives.

Efficiency First and its members play a key role in advocating for policies that create a favorable economic and regulatory environment for Home Performance contractors. California Assembly Bill 758 (AB758), for example, requires the California Energy Commission (CEC) to develop and implement a comprehensive energy efficiency program specifically targeting greater energy savings in California's existing buildings. Adoption of this bill would jump-start a major push toward whole-house retrofits, which would drive business growth for the state's Home Performance contractors. The buildings covered under AB758 represent 72% of California's housing stock, most built prior to the introduction of the Title 24 energy construction code.

Current pilot programs in process as a result of AB758 seek a minimum 20% average energy savings per home as demonstrated by performance testing and energy modeling of the homes. **Retrofit LA** and **Energy Upgrade San Diego** are pilot programs that seek to improve more than 40,000 homes during the pilot phase (through December 2012). A strong Home Performance contracting network is needed to carry out this work. If successful, these pilots will provide the template for future longer-term initiatives and final rule-making related to AB758. As was the case in New York a decade ago, contractors who participate in the pilot programs will have the benefit of being early adopters to a business model that is destined to be in high demand in California for many years to come.

What Business Models Work for Home Performance Contracting?

Home Performance contracting provides a one-stop shopping opportunity for services that are more traditionally handled by various specialty trades within the residential retrofit market. The Home Performance model will be familiar to builders, general contractors and remodelers who routinely take responsibility for engaging sub-contractors and overseeing their work. In the Home Performance model, one company effectively takes on the role of being the GC for the project. A company may provide all services under one umbrella using in-house personnel, or they may choose to work in tandem with other trades using one of the models described below. Factors that will influence this decision include what kind of in-house resources the company has available, what kind of resources the company has to build this capacity, and local regulatory and program requirements.

Viable Business Models for HVAC Specialists to Get Started in Home Performance Contracting

- **Hire Sub-Contractors**

In the sub-contractor model, you will take on the role of a GC, taking full responsibility for all aspects of the project and overseeing the work of any trades that are sub-contracted through you. One of the benefits of this model is that it allows the primary company to establish the rules and standards for the job. Another benefit is that the customer has a single point of contact and is typically only required to execute a single contract. This can be helpful to simplify project tracking, and some incentive and financing programs require this kind of approach.

- **Sub-Contract Work Through a Home Performance Contractor**

In this model, you will sub-contract your services to a Home Performance Contractor who will take the lead role on the job. This model allows you to continue to focus solely on your trade and the specific services that you choose, and it can avoid the overhead costs of maintaining

certifications and liability insurance required for GCs. However, the company to which you sub-contract may ask for reduced pricing from you to reflect the lower overhead and cost of lead acquisition that your company incurs as a result of this relationship. You will also be subject to following the work specifications as defined by the lead Home Performance contractor.

- **Work With Trade Allies**

If you have a good working relationship with a contractor who specializes in insulation, weatherization and envelope retrofits, you may want to consider creating a referral arrangement for your Home Performance jobs. In this model, two (or more) companies routinely work together and divide up the work on the projects by their respective trades. In this model, either company might take the lead on any individual job depending on who brought the lead to the table or the specific scope of work. Referral agreements may include preferred pricing or referral fees to compensate the company that generated the lead.

- **Full-Service Home Performance Contracting (Turn-Key Operation)**

In a full-service Home Performance contracting model, the company has the ability to deliver most if not all of the components of a typical Home Performance job using in-house resources. This business model requires the greatest up-front investment, but the rewards can be great as well. In this model, the Home Performance contractor maintains full ownership of and responsibility for the job. This allows for greater flexibility in scheduling and project management as well as higher net profit margins than any of the other implementation models described above.

The Auditor-Contractor Relationship

The relationship between contractors and auditors has been the subject of much discussion and debate. While some prefer to require independent third-party auditors to ensure the integrity of retrofit recommendations, others believe that audits should be performed by contractors in order to ensure maximum process efficiency and higher audit-to-retrofit conversion rates.⁵

From a contractor's perspective, there are advantages and disadvantages to relying on third-party auditors for the initial evaluation of a home's performance. Working with independent auditors allows contractors to focus on the bread-and-butter work of their trade, without having to devote staff and resources to the audit process. On the downside, the contractor also forfeits his or her role as the primary point of contact with the homeowner and therefore has less control over the sales process.

What's the Best Messaging for Selling Whole-House Retrofits to Homeowners?

The biggest driver of Home Performance sales is the same as in the HVAC industry: Homeowners everywhere are motivated first and foremost by comfort. Some customers will call to find out about how they can save energy or reduce their utility bills. A few will have other specific pain points (mold or odors, for example). But the vast majority simply want their homes to be nice, safe, comfortable places to live. HVAC contractors are in a better position than just about any other retrofit trade to sell comfort. Why not package today's high-tech comfort systems – variable speed fans, modulating condensers, UV filtration, and smart controls – with the added assurance that the duct system is tight and the building envelope is properly sealed and insulated?

The training you receive to become a Home Performance contractor will include a fundamental understanding of how energy, air, heat and moisture move in, out and through a house. As an HVAC contractor, you already know the basics of how this works. As a Home Performance contractor, you will be equipped with the tools and techniques needed to pinpoint the causes of comfort and efficiency problems in the home, but also to show the homeowner how much of a difference the services you provide will make. Blower door data, infrared imaging and other diagnostic tests go hand in hand with modeled energy savings to paint a very clear picture of what's not working in a home and how you can fix it. By presenting this valuable information to your potential customers, you'll gain the ability to sell more services per contract and deliver more effective solutions that will lead to greater customer satisfaction.

⁵ Excerpted from "Best Practices for Energy Retrofit Program Design: Business Models Recommendations." Home Performance Resource Center, March 2010.

What Do I Need to Get Started?

Getting started in the Home Performance business requires technical training and certification, acquisition of diagnostic testing equipment and energy modeling software, program orientation, and back-office support systems. You will also need to attend orientation sessions for any government- or utility-sponsored incentive programs you intend to participate in. Here's what to expect in each of these areas:

- **Training:** Contractors participating in Energy Upgrade California's Basic Upgrade offering are required to attend a two-hour program orientation session and a three-day building science basic training session, which is offered free of charge. Additional training will be needed to obtain certification through the Building Performance Institute. There are currently eight BPI Affiliate organizations active in southern California that offer training opportunities for people seeking BPI certification. This list is available on BPI's Web site at www.bpi.org.
- **Certifications:** To participate at Energy Upgrade California's Advanced Upgrade level, contracting firms must employ at least one person who has earned certification as a BPI Building Analyst. Certification requires passing a two-part test. The first part of the test is a written multiple-choice test typically taken online in a proctored environment. The second part of the test is a hands-on practicum where candidates are required to demonstrate competency using diagnostic equipment and performing the inspections required to comply with BPI's technical standards. Training is not required to become certified, but it is highly recommended. Continuing education is required to maintain BPI certification, and re-testing is required for renewals every three years. Continuing education requirements can be obtained through Webinars hosted by Efficiency First or through regional conferences. BPI Accreditation is also available for contractors. Accredited contractors have achieved higher levels of certification for their staff and agree to practice in accordance with BPI's technical standards. Accreditation provides an opportunity for enhanced market differentiation from competitors and independent third-party quality assurance through BPI.
- **Equipment:** Some basic diagnostic equipment is required to complete a comprehensive home assessment, including a blower door and a combustion gas analyzer. Additional tools that are not required but can also be very helpful in diagnosing problems and selling the job include: infrared camera, duct leakage testing equipment, register flow measurement equipment, and relative humidity and moisture gauges. To complete work according to the HVAC Quality Installation standards required by some programs, additional equipment is needed to measure system airflow and refrigerant charge. An equipment package to get started will cost anywhere from about \$3,000 to \$10,000, depending on the specific package of tools that is selected and level of services being provided. Some equipment requires regular maintenance and annual calibration. Always read the manufacturer's specifications for calibration requirements; some equipment must be shipped out periodically for service and calibration.
- **Energy Modeling Software:** EnergyPro software (www.energysoft.com) is currently the only modeling tool allowed in the SCE/SoCal Gas program. This software is sold in modules, so users

can purchase only the modules they need. A basic residential package including Title 24 compliance costs \$480. The complete residential package costs \$800. Training and technical support for EnergyPro users is also available through EUCA and the California Building Performance Contractors Association (CBPCA). Alternative software packages are going through state approval and maybe available soon.

- **Customer Management, Project Tracking, Scheduling and Data Systems:** While not specifically required by any program, it is important for Home Performance companies to have systems in place for customer management, scheduling and project tracking. Whether you choose to act as a general contractor with subs, use trade allies, or manage in-house crews, project scheduling and resource planning are key to being able to offer Home Performance whole-house services cost-effectively. A streamlined scheduling process will keep you and your customers happy, and an effective project tracking system will make it easier for you to manage program reporting and track your own bottom line.

Next Steps: How Do I Get Started?

The following Web sites give step-by-step instructions for getting signed up in the programs offered in Southern California. Additional websites are listed for support on specific topics.

Energy Upgrade California

www.energyupgradeca.org

Southern California Edison and Southern California Gas (SCE/SoCal Gas)

<http://cbpcapublicutilities.org/sce-scg/apply/>

San Diego Gas and Electric

<https://energycenter.org/upgrade>

www.sdge.com/saveenergy

Chula Vista Home Upgrade Carbon Downgrade Program

www.chulavistaca.gov/clean

Clean Energy Workforce Training Program (training reimbursement through Efficiency First)

<http://www.efficiencyfirst.org/catraining/>

Efficiency First Membership

www.efficiencyfirst.org/join

Building Performance Institute:

www.bpi.org

EnergyPro Software

www.energysoft.com

California Building Performance Contractors Association

www.thebpca.org

Home Performance Resource Center

www.hprcenter.org