PGE2057 Green Building Technical Support Services—Frontier

2006 - 2008

1. Projected Budget*	$1,589,446
2. Projected Net Impacts	
MWh	n/a
MW (Summer Peak)	n/a
Therms	n/a
3. Cost Effectiveness*	
TRC	n/a
PAC	n/a

*Does not include PG&E contract administration costs, which are estimated at 5percent of expected contract value and included at the portfolio level.

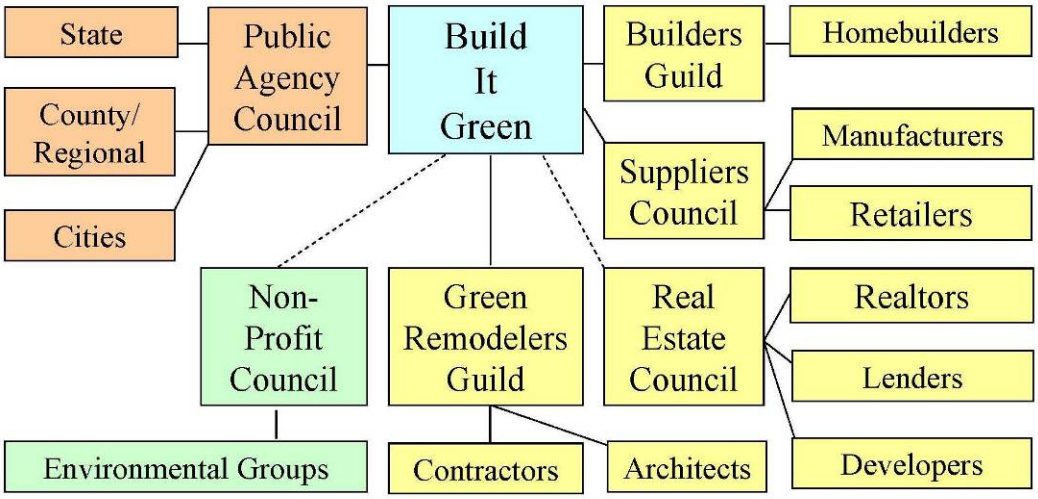
4. Descriptors

Market Sector: Residential Information
Classification: Existing Third Party
Status: Extension

The 2006–2008 Green Building Technical Support Services program will continue to promote Green Building through education and outreach as a core strategy to achieve greater energy efficiency in new and existing homes. The focus of the 2006–2008 program will be to support the programmatic development of Build It Green, a professional non-profit membership organization whose mission is to promote healthy, durable, energy and resource-efficient buildings in California. Supported by a solid foundation of outreach and education, Build It Green connects consumers and building professionals with the tools and technical expertise they need to build quality green buildings. Build It Green fosters collaboration with key stakeholder groups to accelerate the adoption of green building standards, policies, and programs. Education and outreach strategies funded through this program will be targeted to the nine-county San Francisco Bay Area and the three-county Monterey Bay Area.

5. Statement

The 2006–2008 Green Building Technical Support Services program will continue to promote Green Building through education and outreach as a core strategy to achieve greater energy efficiency in new and existing homes. Green Buildings offer a number of societal benefits, including energy efficiency, improved resource utilization, pollution reduction, reduced construction and demolition waste, water conservation, improved storm water management, healthier indoor environments, reduced maintenance costs, and generally higher quality, more durable buildings.



The 2006–2008 program includes two components: (1) residential market-rate new construction and remodeling; and (2) affordable housing. For the market-rate component, Build It Green will target both supply-chain and consumer market actors in the residential new construction and remodeling industries. For the affordable housing component, Build It Green will partner with the Local Initiatives Support Corporation (LISC) to jointly support the development and maturation of the Green Affordable Housing Coalition as a central source of information and resources for affordable housing developers and public agencies with housing-related functions.

5.1 Market Barriers

Key market barriers to Green Building persist in the building and remodeling supply chain; among "consumers" of building technologies (i.e., home owners, home buyers, and tenants); and among public agencies charged with overseeing building construction, managing community-level planning, and protecting the public welfare.

5.1.1 Supply-chain barriers

Lack of information. There is a general lack of knowledge of Green Building techniques and products within the building industry. Green Building education and technical information is still very new to the building industry and is exemplified in perceptions of many Green Building practices as being "too costly," "too new," "unproven," or "not requested by clients." Contractors, architects, and engineers often lack the detailed knowledge and experience they need to specify or recommend Green Building measures with confidence. In addition, they often perceive that knowledge and experience as being of little value in acquiring and retaining clients. Even among industry professionals who embrace Green Building in concept, there remain significant information barriers to finding suitable Green Building materials and service providers.

Risk aversion. Builders and remodeling contractors are resistant to new products and new construction techniques if they think there is any risk that the changes will

- Add to construction costs
- Result in construction delays

- Require skills and experience that their usual subcontractors do not have
- Generate additional call-backs

Organizational practices. Builders and remodeling contractors tend to select subcontractors based on their ability to meet basic project specifications and deliver the project on-time, within budget, and with minimum hassles and call-backs. Contractor knowledge and experience with Green Building practices do not typically enter into the selection decision.

Lack of coordination. Builders and remodeling contractors tend to ignore the importance of integrated design with their projects. Thus each subcontractor is presented with the design and construction choices (and mistakes!) of prior subcontractors as an immutable given. Buildings tend to be more energy and resource efficient when the key designers and contractors work together as an integrated team to resolve design issues.

Regulatory barriers. Green Building may be perceived to conflict, or may actually be in conflict, with local codes or ordinances. Conflict most commonly arises due to lack of education or experience with specific practices or products and lack of effective communication and flexibility in the process of submitting and approving on the part of both the practitioners and the regulating bodies. For affordable housing projects, many funders impose requirements that are inconsistent with Green Building practices.

Split incentives. Builders and remodeling contractors perceive their customers to be uninterested in paying extra for Green and especially for energy efficiency. Since builders will not pay utility bills, provide maintenance and upkeep, or live in the home, they are concerned about long-term financial and health consequences of their construction practices only if they impact home sales value and the builder's overall profitability.

Affordable housing developers in Northern California are primarily nonprofit organizations that develop and build the project and then retain a post-occupancy equity ownership stake. Unlike speculative production builders, they face fewer split incentives: they have an inherent motivation to build projects that are durable and low-maintenance. In some cases, they are responsible for some or all of the utility costs so they have an explicit incentive to consider energy efficiency. However, the remaining barriers apply to affordable housing as well as market-rate housing. In addition, affordable housing developers must run a gauntlet of public agency requirements in order to get a project approved and funded. The complex review process has several consequences: (1) approval requirements are sometimes inconsistent with energy-efficient and Green Building practices; (2) the complexity of the review process limits the staff resources developers can devote to researching construction best practices; and (3) the funding process provides little flexibility for incorporating practices with first-cost implications, even if they are cost-effective from a life-cycle perspective.

5.1.2 Consumer barriers

Lack of awareness and information. Home buyers, home owners, and tenants have relatively low awareness of the existence and nature of energy-efficient and Green features in a home.

They lack the information to recognize those features and to evaluate their potential costs and benefits.

Inseparability of product features. Home buyers, home owners, and tenants must weigh the value of energy efficiency against a list of competing criteria, including square footage, location, school district, lot size, number of bedrooms and bathrooms, style, and other features. Not surprisingly, energy efficiency is rarely important enough to drive the purchase decision. Energy efficiency becomes more influential when it is tied to more core concerns, particularly health, comfort, and maintenance considerations.

Asymmetric information. For many features that affect the resource efficiency and health of a new home, the costs and benefits cannot be evaluated independently. Instead, the home buyer must rely on information from the sales agent, which may not be a credible source. For example, home buyers cannot assess the quantity or quality of insulation in the walls once they are sealed up. In the absence of solid and credible information about a home's performance and construction quality, they are disinclined to pay more for features they cannot see.

5.1.3 Local government barriers

Local governments (cities, counties, and special districts) are logical agents for promoting innovative design and construction practices that improve building resource efficiency and construction quality. They already work closely with construction project developers to ensure that the resulting building will satisfy societal criteria for health and safety and will be consistent with community values for building design and land use, as expressed in the agency's General Plan, Building Code, and other planning policies. They are perceived by buyers as an independent and credible source of information. However, local governments face significant constraints in funding, staffing, expertise, and other resources needed to aggressively promote best practices within the local construction community. Most recently, local governments have been hit with the twin budget bombs of economic stagnation and state budget cuts. Local governments remain very interested in promoting Green Building within their communities, but are not able to take on any additional responsibilities that add in any way to their already limited staffing or budget allocations.

6. Rationale

There is an emerging consensus at the state level that Green Building is an important component of a multifaceted strategy to address a number of inter-related economic, social, and environmental challenges: limited energy supply and grid capacity; water supply constraints; air quality concerns, both indoor and outdoor; finite land availability and increasing land use conflicts between urban uses, agriculture, and wildlife; and a chronic housing shortage that threatens housing affordability. In December, 2004, Governor Schwarzenegger signed Executive Order S-20-04, which directs state agencies to pursue a number of Green Building strategies to achieve greater energy- and resource-efficiency in the commercial and institutional sectors. On a parallel track, a number of state agencies have joined together as the Green Residential Environmental Action Team (GREAT) to draft a set of statewide residential Green Building guidelines. Build It Green and Stopwaste.org (Alameda County Waste Management Authority)

have actively participated in drafting those guidelines, which are based on the ACWMA guidelines this program has and will continue to reference.

6.1 Response to Market Barriers

Over the next three years, we will continue our program focus on addressing supply-chain and consumer informational barriers. On the supply-chain side, we will teach production and custom builders, remodelers, and affordable housing developers how to build Green with reduced risk, how to evaluate and select good subcontractors who can meet their key criteria and build Green, and how to achieve an integrated design and construction process that maximizes construction quality within the constraints of their project schedule and budget. We will train contractors how to meet the increased demand for Green Building skill sets. These activities will address the barriers of lack of information, risk aversion, organizational practices, and lack of coordination. The net desired outcome is a supply chain that is better equipped to deliver Green-built homes and both understands and feels comfortable using the Green Points checklist and rating system.

On the consumer side, we will address lack of awareness and information via aggressive home buyer education. In doing so, we will link energy efficiency to more core concerns, particularly health, comfort, and maintenance considerations. This strategy will mitigate (but not eliminate) the inseparable product features barrier. The net desired outcome is a set of home buyers and home owners who understand the value of Green features, know how to shop for and find what they want, and thereby push the marketplace to respond to their desires.

On the public-sector front, we will partner with local governments through the Build It Green Public Agency Council to take advantage of their long-standing relationships with the community and the construction industry. Local governments will help us communicate with residents and business groups. The Public Agency Council will offer technical and organizational support services to local governments that wish to develop their own Green Building programs. We will train their building inspectors about what to expect when they inspect a Green building. We will also assist them in reviewing their role in affordable housing projects to ensure that they are encouraging rather than discouraging Green Building. These activities will help address supply-chain and consumer information barriers, as well as regulatory barriers.

To be successful over the longer term, the program must squarely address the supply-chain barrier of split incentives and the consumer barrier of asymmetric information. Our key strategy for addressing the asymmetric information barrier will center on a system of inspections and certification. By establishing a visible brand and logo and then certifying qualifying homes as Green, the home buying and remodeling public will be given the tools to better evaluate product and service provider claims and distinguish Green from conventional homes. An inspection process will be required to help maintain the integrity of the program brand image, logo, and market identity. Requiring inspections that satisfy ENERGY STAR® program requirements will also facilitate participation in that program and helps ensure that the program delivers tangible energy benefits.

To address the split incentives barrier, we will couple the inspection and certification process with and expanded public education and cooperative advertising campaign. The purpose of the campaign will be to strengthen the visibility and market value of the Green brand, thus creating an opportunity for builders to recoup any incremental investment they make in Green Building and ultimately stimulating supply-chain competition. Program support will come in the following forms:

- Public education about Green Building to stimulate market demand for Green homes
- Permission to participating builders to include Green Building program name and logo in their own marketing campaigns
- Cooperative advertising resources to participating builders (logo, yard signs, brochures, web site listings, program advertisements)
- Builder referrals via listings on the web site and in resource guides.
- Green home tours
- Continued technical consultation for professionals and educational programs for buyers
- Training in how to effectively market oneself as a Green Building professional.

6.2 Other Program Designs

There are two key rationales for providing the Green Building Technical Support Services program:

1) Green Building programs can deliver energy benefits comparable to or exceeding those of existing energy efficiency programs in the new construction sector.
2) Green Building's non-energy benefits address customer needs more directly than energy-only benefits, making Green Building projects easier to market.

Green Building programs can deliver energy benefits comparable to or exceeding those of existing energy efficiency programs in the new construction sector. While Green Building encompasses aspects other than energy, energy remains the primary and dominant aspect. Energy considerations generate the most activity in Green Building projects and they produce the most easily quantifiable impacts. Green Building programs always include policies to encourage energy efficiency and conservation both directly and indirectly. In keeping with CPUC policies, this program will promote energy efficiency activities "that require permanent replacement of energy-using equipment with more efficient models" as well as installation of higher efficiency equipment in a new construction situation. Specifically, we will promote Green Building program designs that establish a minimum energy efficiency threshold for Green Buildings equal to or better than ENERGY STAR® and Savings by Design. We will also strongly encourage Green Building project sponsors to simultaneously participate in those energy efficiency programs. In this way, the Green Building program will act as a marketing adjunct to existing energy efficiency incentive programs.

Green Building programs go beyond typical end-user oriented energy efficiency programs by seeking to minimize the energy and resource impacts of all building materials through their entire life cycle, starting from raw material extraction, through manufacture, transport,

installation, use, and eventual disposal. For example, recycling materials such as glass and metals typically uses much less energy than manufacture from virgin materials. Incorporating fly ash into concrete dramatically reduces the energy consumption embodied in the Portland cement. While upstream and downstream benefits are often harder to quantify than end user energy savings, they are nevertheless real.

Green Building's non-energy benefits address customer needs more directly than energy-only benefits, making Green Building projects easier to market. The "green" package is much more attractive and has a higher market value than energy efficiency alone. Selling just energy efficiency has been underway for the past 25 years and the research literature is full of documentation showing consumer ambivalence and indifference. On its own, energy efficiency does not have the market salability, attractiveness or demand pull, even though, financially, it makes obvious sense.

The Green Building industry starts from the perspective that other market factors are more important drivers in the way people design, build, sell, and buy or lease buildings. Other drivers include waste reduction, improved indoor air quality, improved natural daylighting (which has shown to increase worker productivity and student academic performance), lower maintenance costs, lower incidence of construction defects and mold-related problems, increased durability, overall improved building quality, and higher market appeal. People are willing to pay more for "Green." A program that appeals to the full spectrum of building owner and occupant concerns will attract more attention, generate more participation, and thus deliver more energy efficiency than an energy efficiency-only program.

6.3 Lost Opportunities

Green Building represents the ultimate strategy for minimizing lost opportunities. The program promotes energy- and resource-efficient building design and construction. It incorporates all of the known energy efficiency technologies and practices, but goes beyond the narrow consideration of energy at its end use. The program takes a holistic view of building design and construction by also considering other major energy issues, such as the energy used to deliver clean water; the energy and resources used in the production, transport, use, and disposal of building materials; and the relationships between the building's energy systems and indoor air quality.

The program also minimizes lost opportunities by emphasizing integrated design. Integrated design requires that all of the key players in the design, construction, and operation of a building (client, architect, engineer, builder, subcontractors, consultants, etc.) work together from the beginning of a project to set and achieve common goals, design the building and its systems, and work through construction and maintenance issues as an integrated team. Integrated design produces building systems that actually work together as a system, reduces construction problems and delays, and improves building quality and resource efficiency.

Finally, Green Building minimizes lost opportunities by considering the full range of impacts buildings have on the human and natural environment. For every building-related decision, a Green Building approach seeks to optimize outcomes to achieve the broadest possible societal

benefits, including energy efficiency, improved resource utilization, pollution reduction, reduced construction and demolition waste, water conservation, improved storm water management, healthier indoor environments, reduced maintenance costs, and generally higher quality, more durable buildings. Because of these multi-faceted benefits, Green Building addresses customer needs more directly than energy-only programs, making Green Building projects easier to market. The "Green" package is much more attractive and has a higher market value than energy efficiency alone.

7. Outcomes

The Green Building Technical Support Services program has four objectives:

1. Expand both the local supply of and demand for Green Building services and products
2. Create a broad awareness of the benefits of Green Building
3. Continue development of organizational frameworks to deliver Green Building education, services, and resources to local governments, building industry professionals, affordable housing developers, and the community.
4. Maximize participation in energy efficiency incentive programs that address residential new construction and remodeling, including

o California ENERGY STAR® New Homes

o Single Family Energy Efficiency Rebates

o Multifamily Energy Efficiency Rebates

o Energy Action

o Partnership for Energy Affordability in Multifamily Housing

8. Strategy

Consistent with our program model since 2002, we will implement a voluntary, education and training program model with a regional scope. We will develop a consistent program design and market identity across multiple cities and counties, combined with local co-branding. This approach maximizes economies of scale and addresses concerns from construction industry professionals about market and government barriers. The program incorporates the following features:

- Organizational support for the Green Affordable Housing Coalition and existing Build It Green Councils: Public Agency Council, Builders Guild, Suppliers Council, Green Remodelers Guild, and Nonprofit Council
- Supply-chain stimulus via technical training for builders, architects, contractors, and real estate professionals
- Consumer stimulus via home tours and other public outreach and education regarding the benefits of building and buying "Green"

- State-of-the-art Green Building website
- Local Government Support (through the Public Agency Council), including building inspector training and technical and programmatic support to local governments that wish to "Green" their affordable housing policies and procedures
- Project-specific technical support for home owners, builders, and contractors

Our definition of "Green" will be based on the statewide Green Points rating system. The Green Points rating system and companion documents synthesizes all of the complexity of the Green Building guidelines into an easy-to-understand measuring system. Recommended Green Building measures all have a point value and are assigned to the various point rating levels based on their impact, costs, availability, and other relevant concerns. For affordable housing we will build on a separate set of guidelines ACWMA is developing for multifamily projects.

Build It Green will serve the San Francisco and Monterey Bay areas. Resources permitting, Build It Green will extend its support services to serve partner communities throughout the PG&E service territory.

9. Objectives

Build It Green will accomplish the following performance goals:

- Develop 8 fact sheets
- Compile 6 new case studies
- Present 15 in-depth workshops
- Conduct 9 Certified Green Building Professional Training courses
- Provide an information table for 15 days at community events and professional conferences
- Make 48 workshop presentations for community groups, professional associations, and public agency staff
- Conduct 30 policymaker presentations for elected and appointed officials
- Provide 5,100 Ask An Expert telephone and email consultations
- Provide 24 project consultations with builders, developers, general contractors, and suppliers
- Sponsor six Green Home Tours
- Maintain and update Green Materials Database listings for 500 qualifying green materials and products, distributed through more than 700 retailers and distributors serving seven counties
- Extend Green Materials Database coverage to two additional counties
- Maintain 50 point-of-purchase displays and install 20 new displays
- Provide 1,700 hours of staff support services to councils and guilds, including the Green Affordable Housing Coalition, Public Agency Council, Suppliers Council, Green Remodelers Guild, Nonprofit Council, and Builders Council

10. Implementation

The scope of work for 2006–2008 reflects our accumulated field experience regarding what works and what is needed, our careful review of the CPUC's National Energy Efficiency Best Practices Study, and the combined strategic planning efforts of Build It Green and the Green Affordable Housing Coalition. Program implementation activities related to each performance measure are described below.

10.1 Fact sheets

We will develop eight fact sheets addressing technical questions and implementation issues, with particular emphasis on energy efficiency and real-world experiences with Green Building materials, technologies, and practices. Build It Green will confer with the Green Affordable Housing Coalition to identify topics of particular concern to affordable housing developers.

10.2 Case studies

We will compile six new studies, from projects to be determined, using a previously developed in-depth case study template. We will use the Green Points checklist and the Multifamily Guidelines from Stopwaste.org to screen potential projects. Affordable housing projects will be solicited through the Green Affordable Housing Coalition.

10.3 In-depth workshops

We will offer a series of in-depth workshops on multiple topics. Workshops will generally be a half-day or full day in length. Different topics will target different audiences, both lay and professional. At least one topic will be targeted to home owners.

10.4 Certified Green Building Professional Training

The Certified Green Building Professional Training is a 16-hour training program with a proficiency exam designed for builders, contractors, A&E professionals, and other residential building tradespeople. The course covers all major building components and addresses technical issues related to energy and resource efficiency, indoor air quality, and materials sustainability. Licensed contractors who successfully complete the course earn a Green Building certification and become eligible to join the Green Remodelers Guild. Certified contractors are also listed on Build It Green's contractor referral page (see www.BuildItGreen.org). The Green Remodelers Guild is in the process of developing continuing education requirements for its members.

10.5 Information tables

Build It Green will update its informational display and take it to home shows, trade shows, the Green Material Showcase, and Green Festival. Build It Green staff will also coordinate with the Local Initiatives Support Corporation and the Green Affordable Housing Coalition to promote Green Building at affordable housing events.

10.6 Workshop presentations

Build It Green will conduct a series of shorter-length presentations and workshops for lay audiences, building professionals, and public agency staff. Presentations will generally be one to

two hours in length and free of charge. The workshops will address topics such as integrated design, Green Building's value to builders and home buyers, and how to incorporate Green measures in a project. As part of this task, we will also work through the Green Affordable Housing Coalition to organize periodic brown-bag workshops.

10.7 Policy maker presentations

For elected and appointed officials and other policy makers, Build It Green will offer high-level presentations that explain the policy rationale for Green Building, its value to the community, and how to promote Green Building through sound policy decisions.

10.8 Ask An Expert

Build It Green's Ask An Expert service provides building professionals and the general public with customized, project-specific Green Building information. In addition to informing visitors about materials, technologies, and building techniques, the hotline service acts as a hub, linking visitors to local energy efficiency programs, Green Building professionals, and product retailers and wholesalers. Users can submit questions electronically or by calling a toll-free number, 888-40-GREEN (888-404-7336).

Hotline operators are trained to provide "active response," not only answering the incoming question but also inquiring about the entire scope of the related project so that the whole range of Green Building issues are addressed. For example, an incoming question may regard nontoxic floor finishes. The hotline operator answers the question and finds out that the project is a kitchen remodel; he or she then explains the importance of selecting ENERGY STAR® appliances and compact fluorescent light fixtures and tells the client where he or she can find them and what rebates are available.

The Ask An Expert service utilizes an extensive tracking system to document the nature of each visitor's project scope and the Green Building measures recommended.

10.9 Project consultations

We will offer consultation services and project-specific advice to construction professionals. Developers, builders, contractors, and suppliers will be able to speak with a Green Building professional or schedule face-to-face sessions to consult on project/program goals, process, materials, or systems. Consultations can also take the form of job site visits. Resources will be earmarked for follow-up research to address specific technical and process issues a client might have.

10.10 Green Home Tours

Build It Green will sponsor a series of Green Home Tours to provide interested home owners and buyers with a "hands-on" experience with Green homes that are attractive, comfortable, and affordable. Public Goods Charge funds will be used as seed money but most tour costs will be covered by corporate sponsorships and ticket sales. Based on experience with the first tour recently completed on May 1, 2005, we anticipate including 20 to 30 homes per tour and drawing more than 1,000 visitors to each event. Tours will create a focal point for consumer education and public relations activities.

10.11 Green Materials Database

The Green Materials Database provides product listings from retailers and distributors (see www.BuildItGreen.org). Products are included if they are consistent with the residential Green Building guidelines from Stopwaste.org, are written up in Environmental Building News, or pass review by the review committee. Product listings are compiled from internet research, phone calls to stores, reviews of existing resource guides, and store visits. Listings must be reviewed and updated periodically to reflect changes in stocking practices.

10.12 Point-of-purchase displays

As part of our Materials Database research, we will offer building materials retailers point-of-purchase displays to help their customers access Green Building information. Our objective will be to place Green Building information in a high-visibility location within the store and, if possible, orient retail staff about Green Building so they can provide referrals. We will offer these same displays to local governments for placement at building permit counters, libraries and other public facilities with high foot traffic.

10.13 Staff support services to councils and guilds

Perhaps the most important single function Build It Green provides is technical and organizational support for its councils and guilds. While outcomes and performance targets are particularly hard to quantify for this program element, it is nevertheless essential. The councils and guilds provide key ongoing contact with the various stakeholder communities. Their members are our eyes and ears. They are also our leverage, multiplying staff efforts through their own volunteer efforts and day-to-day business activities. By participating in the councils and guilds, their individual efforts are likewise leveraged through collaboration and coordination with their peers. Finally, the councils and guilds are an ongoing educational forum. Regular participants become true Green Building experts, qualified spokespersons, and dedicated champions.

Support services will include

- Meeting coordination
- Administration (book-keeping, minutes, etc.)
- Membership development and services
- Peer network maintenance (e.g., email listservs, web pages)
- Assistance and facilitation of strategic planning efforts
- Other implementation activities, as needed

11. Customer Description

11.1 Local Governments

The San Francisco Bay Area encompasses nine counties and 101 cities and towns. Almost 90 percent of the Bay Area population lives in an incorporated city. The top 50 cities account for almost 80 percent of the regional population. Cities range in size from San José (population 895,000) to Colma (population 1,200).

Monterey Bay Area encompasses three counties and 18 cities. The Monterey Bay Area is less heavily urbanized—incorporated cities accounted for only 64 percent of the population as of 2000. However, cities surrounding Santa Cruz and Monterey/Pacific Grove and cities along the Highway 101 corridor have experienced rapid population growth since 1990, ranging from 30 to 80 percent.

The Association of Bay Area Governments and the Association of Monterey Bay Area Governments are the primary member organizations serving local governments at the regional level. They are also the designated Metropolitan Planning Organizations. The California State Association of Counties and the League of California Cities serve their respective constituencies at the state level.

11.2 Residential Home Builders

Between 2000 and 2004, builders constructed approximately 28,500 housing units per year in the 12 counties comprising the San Francisco and Monterey Bay Areas. Approximately 58 percent were single-family homes.

COUNTY	Total SF Units 2000–2004	Total MF Units 2000–2004	Total Units 2000–2004
ALAMEDA	11,168	10,059	21,227
CONTRA COSTA	22,759	6,199	28,958
MARIN	2,192	995	3,187
MONTEREY	5,588	1,062	6,650
NAPA	3,168	1,041	4,209
SAN BENITO	1,189	50	1,239
SAN FRANCISCO	401	10,063	10,464
SAN MATEO	3,589	4,007	7,596
SANTA CLARA	11,541	18,981	30,522
SANTA CRUZ	2,625	1,492	4,117
SOLANO	10,214	2,853	13,067
SONOMA	7,706	3,543	11,249
Grand Total	82,140	60,345	142,485

A number of production builders are active in the area, including:

- Beck Properties
- Centex Homes
- Claremont Homes
- Clarum Homes
- Greenbriar Homes
- Morrison Homes
- Ponderosa Homes
- Pulte Home Corporation
- Shapell Industries
- Shea Homes
- Signature Properties
- Silverwood Homes
- Summer Hill Development
- The Hofmann Company
- Toll Brothers

11.3 Affordable Housing Developers

Affordable housing developers in Northern California are primarily nonprofit organizations that develop and build the project and then retain an equity ownership stake once the project is completed and occupied. The utility customers served by affordable housing developers would all be considered hard-to-reach. The Nonprofit Housing Association of Northern California is the primary advocacy and networking organization for affordable housing developers in the region. The following organizations are all quite active regionally in housing development:

- Affordable Housing Associates
- Allied Housing, Inc.
- Bernal Heights Neighborhood Center
- BRIDGE Housing Corporation
- Citizens Housing Corporation
- EAH, Inc.
- East Bay Asian Local Development Corporation
- Eden Housing
- First Community Housing
- Mercy Housing
- Mid Peninsula Housing Coalition
- Resources for Community Development
- Tenderloin Neighborhood Development Corporation

11.4 Remodeling Contractors

The National Association of the Remodeling Industry member directory lists 70 general contractors and 25 specialty contractors serving the San Francisco Bay Area.

11.5 Home Buyers

Population is projected to grow by 373,400 (4.5 percent) between 2005 and 2010 and by 1,888,200 (19.4 percent) by 2030. Assuming 2.7 persons per household, these figures translate into the addition of 138,000 households by 2010 and almost 700,000 households by 2030.

Regional Population and Employment Forecast 2005–2030

		2005	2010	2015	2020	2025	2030
Population	ABAG	7,091,700	7,419,600	7,749,100	8,094,000	8,419,100	8,747,100
	AMBAG	758,555	804,096	849,521	894,940	943,160	991,369
	Total	7,850,255	8,223,696	8,598,621	8,988,940	9,362,260	9,738,469
	Growth	0.0%	4.5%	8.7%	12.7%	16.2%	19.4%
Employment	ABAG	3,225,100	3,517,320	3,805,320	4,092,620	4,398,840	4,698,800
	AMBAG	416,545	454,955	486,296	517,622	552,004	586,374
	Total	3,641,645	3,972,275	4,291,616	4,610,242	4,950,844	5,285,174
	Growth	0.0%	8.3%	15.1%	21.0%	26.4%	31.1%

Nationally, the profile of the typical buyer of a green home, product or service is someone who has some experience in homeownership. First-time homebuyers are often so overwhelmed with the complexity and stress of the buying process that they have trouble making decisions or focusing on the higher-level decisions such as Green Building. Second and third-time buyers do not have that stress, having gained previous experience with the purchase process and knowing

first-hand the challenges of home ownership (maintenance, repairs, utility bills, ineffective systems, etc.). These more experienced buyers are more willing to take the time and effort to investigate Green Building and then make educated buying choices. The typical green home consumer is also a middle-income buyer. Low-income buyers generally do not feel they can afford Green Building and high-income buyers do not show a great interest in it.

12. Customer Interface

Most program activities are open to all building professionals and residents in the participating communities. Since the purpose of the program is to create widespread awareness, there is no intent or restriction to limit participation to low-income or otherwise income-qualified families, or to strict geographical limits. Enrollment processes for seminars and workshops will be developed on a case-by-case basis to reflect the make-up of the target audience and the nature of any strategic partners that may be involved.

12.1.1 Local Governments

Eligible local governments include cities, counties, and special districts served by PG&E. Participation will be through the Public Agency Council. There are no membership fees and minimal membership requirements for participation in the Council.

12.1.2 Private and Nonprofit Sector

Project-specific consulting services will be restricted to projects served by PG&E. Seminars, workshops, and related training activities will take place within the PG&E service territory. Distribution of print materials will be restricted to residents, construction industry professionals, and other market actors in the PG&E service territory while electronic information and tools will be available without geographic restriction, via the Internet.

13. Energy Measures and Program Activities

13.1 Prescriptive measures.
Not applicable.

13.2 kWh Level Data.
Not applicable.

13.3 Non-energy Activities
See Section 10, “Program Implementation”

13.4 Subcontractor Activities

Build It Green's expected subcontracting activities are as follows:

- Build It Green may solicit guest presenters with specialized expertise to provide content for selected in-depth workshops.
- Certified Green Building Professional Training courses will be conducted by What's Working, assisted by local building professionals
- To extend Build It Green's geographical reach for delivery of workshops and policymaker presentations, Build It Green will develop standard presentations and train qualified local professionals to deliver them. Professionals will be selected for their technical knowledge and experience, public speaking abilities, and connections with their local community.
- Build It Green may solicit building professionals with specialized expertise to consult on projects with builders, developers, general contractors, and suppliers
- Build It Green will partner with local organizations to deliver Green Home Tours. Partners will be selected for their internal capacity to contribute to fundraising, planning, and implementation activities. In the East Bay, Build It Green anticipates that Stopwaste.org will continue to be a key strategic partner.
- Build It Green will engage What's Working to support efforts to organize emerging councils and guilds, particularly the Real Estate Council and Builders Council. What's Working will continue to play a strategic role in coordinating the activities of the various councils and guilds in support of the overall work program and mission.
- Subcontractors will provide assistance to Build It Green to develop marketing collateral and education materials, enhance and maintain the program website, and manage media relations.

13.5 Quality Assurance and Evaluation Activities

EM&V will be addressed at the portfolio level.

13.5.1 Expected number/percent of inspections

Not applicable

13.6 Marketing Activities

Because the Green Building Technical Support Service program focuses on education and outreach, there is no clear distinction between marketing and direct implementation activities.

Our outreach efforts will target the following groups:

- Local governments
- Residential home builders
- Affordable housing developers
- Remodeling contractors

- Suppliers of construction materials and equipment
- Potential home buyers

13.6.1 Local Government Outreach

Local governments throughout California are invited to participate in the Public Agency Council. To recruit local government involvement, we will contact City Managers and City Administrators throughout the Bay Area and northern California. We will also cultivate strategic partnerships with local government groups such as the Association of Bay Area Governments, the Association of Monterey Bay Area Governments, and the League of California Cities as a strategy to generate interest via word-of-mouth and networking.

13.6.2 Residential Home Builder Outreach

We will target specific building professionals who are leaders or want to become the leaders in the local industry due to their quality and innovation. We will meet personally with the building professionals, fully explain all of the education and outreach resources that the program offers, and make a compelling case for building Green. We will also cultivate strategic partnerships with industry groups such as the Building Industry Association, National Association of Home Builders, and North Coast Builders Exchange as a strategy to generate interest via word-of-mouth and networking.

13.6.3 Affordable Housing Developer Outreach

Our outreach to affordable housing developers and associated service providers will build on the contacts and networks we have previously developed through our efforts to organize the Green Affordable Housing Coalition. We have found that the most effective and cost-efficient approach is a combination of word of mouth and strategic partnerships with nonprofit housing support organizations; in particular Nonprofit Housing Association of Northern California, Multifamily Housing Consortium and Local Initiatives Support Corporation. Our local government contacts have also provided a number of referrals and we expect continued outreach to local governments to translate into additional affordable housing contacts.

13.6.4 Remodeling Contractor Outreach

We are developing an extensive network of contractor contacts and relationships through the Green Remodelers Guild, the Certified Green Professional training series, and through marketing of sponsorship opportunities for workshops and home tours. We will also cultivate strategic partnerships with industry groups such as the National Association of the Remodeling Industry as a strategy to generate interest via word-of-mouth and networking.

13.6.5 Supplier Outreach

We are developing an extensive network of supplier contacts and relationships through our marketing of sponsorship opportunities for workshops and home tours. We will continue to foster those relationships through in-person and one-on-one contact.

13.6.6 Home Buyer Outreach

We will communicate our program messages through information channels that home buyers typically consult for information on building and construction. Such information outlets include municipal websites, community newsletters, print new home guides, home sections of the newspaper, television and radio home shows, home and garden trade shows, realty professionals, new home tours, retail building material supply stores, and the Internet. We will cultivate strategic partnerships with local governments and civic, faith-based, and community groups as a strategy to generate interest via newsletters, websites, word-of-mouth, and networking.