

**Proposal for
Green Building Technical Support
Services**

Submitted to:

Submitted to the California Public Utilities Commission

Submitted by:

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Note: This is the sole proposal from Frontier Associates

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Section I. Program Overview

A. Program Concept

The 2004–2005 Green Building Technical Support Services program builds on the momentum the program has generated in 2002–2003. The program will include two components: (1) residential market-rate new construction and remodeling; and (2) affordable housing. For the market-rate component, we will target both supply-side and demand-side market actors in the residential new construction and remodeling industries. For the affordable housing component, we will continue to direct our efforts to 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.

B. Program Rationale

Green Building programs promote energy- and resource-efficient building design and construction. They incorporate all of the known energy efficiency technologies and practices, but go beyond the narrow consideration of energy at its end use. Green Building 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.

Integrated design is a basic tenet of Green Building. 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.

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.

There are two key rationales for developing a 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.

Our program emphasizes new construction since, as a general rule, incorporating energy and resource efficiency into the design and construction of a new building is more effective than retrofitting a building after construction. Of course, most Green Building materials,

technologies, and practices are applicable to remodeling as well as new construction so the program will address remodeling as well. However, the program will not focus on promoting specific equipment retrofits.

Market Barriers

Supply-side 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 in the Bay Area.

Risk aversion. Builders 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 tend to select contractors 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 tend to ignore the importance of integrated design with their projects. Thus each contractor is presented with the design and construction choices (and mistakes!) of prior contractors 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 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 the Bay Area 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.

Demand-side barriers

Lack of awareness and information. Home buyers 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 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, the costs and benefits cannot be evaluated independently and 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.

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. In the short term, at least, they remain very interested in providing Green Building information, but are not able to take on any additional responsibilities that add in any way to their already limited staffing or budget allocations.

Program Response

Program Years 2004 and 2005

Over the next two years, we will focus program efforts on addressing supply-side and demand-side informational barriers. On the supply 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 GreenPoints checklist and rating system.

On the demand 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 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. We will offer limited technical and organizational consulting services to cities 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-side and demand-side information barriers, as well as regulatory barriers.

Post-2005

To be successful over the longer term, the program must squarely address the supply-side barrier of split incentives and the demand-side 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-side 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 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 Building tours
- Continued technical consultation for professionals and educational programs for buyers
- Training in how to effectively market oneself as a Green Building professional.

2002–2003 Program Accomplishments

Through August, 2003, the Green Building Technical Support Services program has made considerable progress toward its program objectives, despite a five-month delay in the program selection and contracting process and despite local government budgetary hardships stemming from continued economic stagnation and the state government budget crisis:

- We have met our target of serving five local government partners: City of San Ramon, City of Santa Rosa, Contra Costa County, Alameda County Solid Waste Authority, and the Green Affordable Housing Coalition (GAHC). The latter, made up primarily of local governments and affordable housing developers, has included the active participation of the Cities of Berkeley, Oakland, Richmond, San Francisco, and San Ramon; Oakland Housing Authority; the Counties of Contra Costa, Marin, and San Mateo; and the Alameda County Waste Management Authority.
- We have helped the Cities of San Ramon and Santa Rosa and Contra Costa County develop active Green Building Program Development Teams made up of public-

private members that have been meeting monthly, and in the last three months bi-weekly. The teams have developed conceptual plans and are in the final stages of putting together implementation plans with those partners. The teams have also begun some public education and outreach efforts.

- We have established an e-mail listserv, via which participants exchange technical information on Green Building practices and products.
- We have helped Contra Costa County develop an in-house Green Building team that meets bi-weekly and helped them through an in-house educational program. They are in the final stages of developing a set of Green Building specifications for civic projects, modeled on the California High Performance Schools and USGBC-LEED™ guidelines.
- We have researched affordable housing developer and local government information needs relating to Green Building and incorporated that information into a short-term and long-term work plan for the GAHC.
- We put together a comprehensive Green Building website, www.greenaffordablehousing.org. While the site features information of particular interest to the affordable housing community, it is structured as a one-stop information source for professionals interested in all sectors and aspects of Green Building.
- With program assistance, Contra Costa and Sonoma Counties have both tailored the ACWMA Residential New Construction and Remodeling Guidelines to their local communities and printed copies for distribution. Marin County and San Francisco have done so independently.
- We are currently writing a companion guide to ACWMA's GreenPoints checklist and rating system. The companion guide and checklist will be a core element in all the programs we are helping develop.
- We are currently developing training presentations for building professionals, building inspectors, and homebuyers.
- We are developing three original, in-depth case studies of Bay Area affordable housing projects with noteworthy Green features.
- We have collaborated with Nonprofit Housing Association of Northern California (NPH) to help revive NPH's Sustainable Development Working Group. GAHC and NPH have hosted three joint meetings (scheduled bimonthly), which have included guest presentations on resource efficient utility allowances, field experiences with Green Building, and photovoltaics for affordable housing.
- We meet monthly with the GAHC steering committee, which includes representation from two local governments, three nonprofit housing developers, a nonprofit organization that provides affordable housing design services, and a related CPUC-funded energy efficiency program.
- We meet monthly with the newly formed Bay Area Green Building Supplier's Council.

- We have made six presentations to policy-making bodies around the Bay Area.

C. Program Objectives

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 the California ENERGY STAR® New Homes Program

Section II. Program Process

A. Program Implementation

Consistent with our program model in 2002–2003, we propose 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:

- Continued organizational support for the Green Affordable Housing Coalition
- Supply-side stimulus via technical training for builders, architects, contractors, and real estate professionals
- Demand-side stimulus via aggressive public outreach and education regarding the benefits of building and buying “Green”
- State-of-the-art Green Building website
- Local Government Support, including building inspector training and technical and programmatic support to local governments that wish to “Green” their capital improvement programs and/or their affordable housing policies and procedures
- Project-specific technical support for home owners, builders, and contractors, via the Green Resource Center

Our definition of “Green” will be based on Alameda County Waste Management Authority’s Residential New Construction and Remodeling Guidelines and Greenpoints™ rating system and the statewide ENERGY STAR® new home construction program. The GreenPoints 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 in the Bay Area, we will build on a separate set of guidelines ACWMA is developing for multifamily projects.

Green Affordable Housing Coalition Support

Frontier Associates has conducted a series of interviews with local government staff and affordable housing developers to identify and prioritize Green Building information and training needs within this segment. Based on that research, Frontier and the GAHC steering committee have identified the following activities to pursue in the Bay Area:

- Develop ten 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.

- Compile four new affordable housing case studies, from projects to be determined, using previously developed in-depth case study template.
- Offer half-day workshops on multiple topics, including “Green Building 101”.
- Maintain and cultivate a peer network for information exchange via email listserv and bimonthly meetings with NPH’s Sustainable Development Working Group.
- Prepare twelve half-hour presentations on selected technical challenges, to be presented at bimonthly Coalition meetings. Presentations will also be posted to the website.
- Prepare event booth or display and attend eight events that serve affordable housing professionals. Possible events include professional conferences and workshops hosted by Nonprofit Housing Association of Northern California, California Redevelopment Association, Housing California, Association of Housing Management Agents, League of California Cities, California State Association of Counties, and Association of Bay Area Governments.
- Provide ongoing staff support for the Coalition steering committee, including assistance in forming a permanent organizational relationship with an existing nonprofit that has a compatible mission.

In addition to the above activities, affordable housing developers and contractors will be able to take advantage of the full range of technical training and support services described below, including a “Green Building 101” seminar; project walk-throughs; in-depth, professional training seminars; and project-specific consultations.

Supply-side stimulus

In order to have a marketplace for Green Building, one first needs to develop the supply end, which consists of builders, architects, and product/service suppliers. The program’s supply-side component will focus on getting building professionals to join the program, take advantage of the program’s educational and networking resources, learn to provide Green Building products and services, and then to market themselves as Green Building professionals. This education and outreach effort will include a number of strategies and tools:

- Targeted outreach
- Technical training and support for builders, architects, contractors, and real estate professionals
- Training- and testing-based certification process for remodeling contractors (expanding on the National Association of the Remodeling Industry’s initiative)
- Print- and web-based building professional educational materials such as a sourcebook, model policies, model specifications, model education and outreach materials, checklists, fact sheets, case studies, and resource lists

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 provide each builder with an education and outreach package that will include more in-depth information. Key benefits to builders are expected to include:

- Superior construction quality, resulting in fewer callbacks and possibly reduced construction defect litigation
- Improved documentation of construction process, which holds subcontractors accountable and helps defend against construction defect litigation
- Improved customer satisfaction, resulting in enhanced positive word of mouth
- Market recognition of builder's commitment to quality and innovation
- Ability to sell Green homes at a premium that justifies any additional investment
- Financial incentives via participation in the ENERGY STAR® new homes program

Technical training and support

A training program for building professionals (serving both market-rate and affordable housing segments) will consist of three elements:

- 1) A "Green Building 101" seminar
- 2) Project-specific consultations, including project walk-throughs
- 3) In-depth, professional training seminars

We will offer builders and other construction professionals a "Green Building 101" seminar. The seminar will explain what Green Building is, the integrated design approach, Green Building's value to builders and home buyers, and how to incorporate green measures in a project. The session will also cover how to certify a project using the GreenPoints rating system, as well as available program resources. Attendees will be given a training manual that addresses Green Building basics in more depth.

We will offer construction professionals consultation services and project-specific advice. Developers will be able to speak with a Green Building professional or schedule face-to-face sessions to consult on project goals, process, materials, or systems. Resources will also be earmarked for follow-up research to address specific technical and process issues a developer might have. We will also offer builders a half-day walk-through of the builder's job site(s) with a Green Building professional. These site visits will be used to transfer the general and theoretical information provided in the seminar setting to the builder's actual situation. The builder (and hopefully top supervisors and key subcontractors) and the Green Building professional will discuss specific strategies the builder can adopt to improve construction quality and earn GreenPoints credits. Program staff will also take advantage of

this opportunity to direct developers to the ENERGY STAR® New Homes Program's financial incentives and design assistance services.

Finally, we will offer and publicize regular professional seminars, in addition to the Green Building 101 seminar. We will identify and publicize training sessions offered by other organizations that construction professionals can attend, including seminars and classes offered by American Institute of Architects, the American Society of Interior Designers, the National Association of Homebuilders, National Association of the Remodeling Industry, PG&E, and local colleges and universities. We will supplement these course offerings as necessary with seminars developed in-house.

Print- and web-based building professional educational materials

Resources will include the guidelines, checklist, fact sheets, case studies, training seminar curricula, and resource lists. All print resources will also be available electronically via the Internet.

Demand-side stimulus

In conjunction with supply side development, the program must develop demand for Green Building via education and outreach to the buying public. This effort entails educating potential home buyers on what Green Building is, its value to them, their choices in the marketplace, and sources for more information.

Demand-side education and outreach will require a sustained multi-avenue effort. The overall strategic effort requires three general actions; (1) getting their attention, (2) educating them on Green Building and its value; and (3) showing them how and where to purchase the homes, services, and products that are being offered. Before launching a full-scale education campaign, we will pilot test educational messages to make sure we thoroughly understand our target market and the Green Building arguments they find compelling.

To get the attention of our target audience, we will communicate our program messages through information channels that home buyers typically consult for information on building and construction. Such information outlets include 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. Our outreach campaign will include a program name and logo that allows a consumer to quickly identify the program and any professionals that are participating in the program.

Outreach efforts will direct consumers to program sources for additional information about Green Building and its value to them. Print and Internet informational resources will include the guidelines, checklist, fact sheets, and case studies. All print resources will also be available on the Internet. Education and outreach efforts will also incorporate the following activities:

- **Presentations:** A series of one-hour presentations, free of charge to the public. Our targeted venues will include local home and garden shows, neighborhood

association meetings, public fairs, religious meetings, and community organization meetings.

- **Telephone Hotline:** project-specific email- and phone-based technical support for home owners and their contractors via our relationship with the Green Resource Center.
- **Tours:** A Green Homes Tour to provide interested home buyers with a “hands-on” experience with Green homes that are attractive, comfortable, and affordable. We will provide seed money to offset some of the labor and hard costs for the first year, with remaining costs to be covered by corporate sponsorships and ticket sales. We anticipate that the tours will be self supporting in subsequent years. To assist with organizing the Tour, we will cultivate partnerships with the US Green Building Council, the local homebuilders and remodelers associations, the Green Building Supplier’s Council, environmental groups, other municipalities, PG&E, etc. We will use the US Department of Energy’s *How to Run a Green Building Tour* for guidance.
- **Kiosks:** We will provide four Green Building informational kiosks that feature sample materials and take-away program brochures. Kiosks will generally reside at City and County building permit centers. They will be designed to be portable so that cities and counties can also set them up as temporary displays at libraries, community centers, and special events. We will also encourage local libraries to purchase Green Building resources and develop a one-page sheet listing available resources.
- **Point-of-Purchase Displays:** We will compile a target list of materials supply outlets such as lumberyards, hardware stores, carpet distributors, etc. 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.
- **Resource Referrals.** The final component of our demand-side education and outreach initiative will focus on translating increased awareness into action. This component will address where to purchase Green homes, products and services. In particular, we will publicize sources of Green Building materials, contractors who have received Green Building training and certification via the NARI and CBPC training programs. We will also explore the feasibility of publicizing builders who self-certify their projects using the GreenPoints checklist.
- **Media.** We will attempt to get informational articles about Green Building published in local daily, weekly, and monthly print media. We will especially focus on newspapers and magazines that address Home and Garden or New Home topics.



Website

We will continue to develop and enhance Internet resources at www.GreenAffordableHousing.org and www.GreenResourceCenter.org. Partnering local governments will also be free to include program resources on their own websites. Activities will include:

- Periodically update program status descriptions for local governments and housing developers
- Track and analyze website usage data
- Maximize website visibility by optimizing search engine results and encouraging other websites to provide links
- Add new Feature articles (monthly, 24 articles total)
- Update calendar (monthly, 24 updates total)
- Test links to other websites, update and enhance, as necessary (every 6 months, 4 times total)
- Compile data documenting actual installed costs of various Green Building technologies
- Solicit local governments for examples of policies and RFP language they have already developed for in-house use and publish submissions on the program website
- Incorporate all new educational content the program develops

Website development and maintenance activities are budgeted as marketing costs, though the activity is more appropriately treated as a direct implementation activity. For budgeting purposes, we have assumed 400 labor hours at \$37.50 per hour and 100 hours at \$52.50 per hour.

Local Government Support

We will provide general Green Building education resources to local government staff brown-bag luncheon presentations. We will offer more in-depth trainings for building inspectors who wish to stay abreast of new techniques and products entering the marketplace. Training may be set up as regular meetings or performed on a case-by-case basis. We will also provide technical assistance to local governments seeking to more actively encourage Green Building practices for affordable housing projects within their jurisdictions. Typical assistance in this area will entail helping governments craft policies and RFPs encouraging Green Building, providing basic Green Building education for staff, and offering strategic and organizational consultation to in-house Green Building programs.

Local government will also be encouraged to review their General Plan, land use ordinances, zoning regulations, parking regulations, building codes, and enforcement policies to determine whether those policies and regulations present barriers to Green Building. Program staff will work with local governments to identify and mitigate those

barriers when possible. We will also encourage local governments to explore positive incentive options to promote Green Building such as:

- Fee waivers or tax breaks for developers who build green
- Incentives for density, mixed use, adaptive reuse, second units, and transit-oriented development
- Expedited plan check or design review for developers who build green
- Financing (loans or rebates) for renewable energy, energy efficiency, and other revenue generating or cost-saving measures
- More prominent and supportive local government role in community participation process

Remodeler Training and Certification

The San Francisco chapter of the National Association of the Remodeling Industry (NARI) has developed a Certified Green Building Professional certification course which is open to any building professional licensed in California. Similarly, the California Building Performance Contractors Association (CBCA) has developed a training and certification program for contractors working in the South Bay (e.g., San José). We will promote these trainings to building professionals and this certification to buyers as a way to find Green Building professionals.

Project-specific Technical Support

The Green Resource Center's Ask An Expert service will provide 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 will act as a hub, linking visitors to local energy efficiency programs, Green Building professionals, and product retailers and wholesalers.

Hotline operators will 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.

Data will be collected on the nature of each visitor's project scope and the Green Building measures recommended. The GRC will follow up with approximately 10% of visitors to ascertain the rate of implementation. Based on this collected data, the Ask An Expert service will roughly determine the outcomes of the service, including:

- Tons of waste diverted
- Kilowatt-hours of energy saved

- KW peak power avoided
- Therms of natural gas saved
- Pounds of SO_x avoided
- Pounds of NO_x avoided
- Pounds of CO₂ avoided
- Gallons of water saved / sewer treatment avoided
- Pounds of VOCs avoided

Coordination with Related Programs

Our program will coordinate closely with the California ENERGY STAR® New Homes Program. Green Building guidelines will be consistent with ENERGY STAR® program requirements and residential builders will be strongly encouraged to participate in that program. Affordable housing developers will be encouraged to take advantage of the New Homes Program's design assistance services and financial incentives.

Similarly, we will also coordinate with City and County of San Francisco's Peak Energy Pilot Program. That program includes a Multifamily Energy Efficiency Rebate component that offers cash rebates for the installation of qualified energy efficiency products in apartment dwelling units and common areas of apartment and condominium complexes. Affordable housing developers working in San Francisco will be encouraged to take advantage of these resources. Because the Green Building program focuses more on education targeted to new construction, we anticipate little if any duplication of service.

The half-day workshop component will provide an opportunity to coordinate with PG&E's Pacific Energy Center (PEC), which serves as an educational resource for a diverse audience of business, academic, and government professionals. We will offer the PEC the opportunity to host workshops we develop. We will also refer program participants to PEC workshops as an additional source of professional training.

We will continue to coordinate with ICF Consulting's Energy Action program. In 2002–2003 we coordinated with ICF and its subcontractors in the multifamily arena. In particular, we regularly referred members of the Green Affordable Housing Coalition to Energy Action program resources. Since Energy Action focuses on existing multifamily retrofits rather than new construction, service duplication was not an issue. Coordination was facilitated by the fact that a key subcontractor from the Energy Action program also served on the GAHC steering committee. We anticipate maintaining and expanding these communication channels and coordination efforts in 2004–2005.

We will coordinate with the California Building Performance Contractors Association's Home Performance Program. This program provides training and certification services for contractors working in the South Bay (e.g., San José). Certified contractors may include the ENERGY STAR® logo in their promotional materials. We will promote these trainings to

building professionals and this certification to buyers as a way to find Green Building professionals.

We will of course coordinate with existing Green Building programs, including those in the Cities of Berkeley, Oakland, San Jose, San Francisco, Pleasanton, Santa Rosa, San Ramon, the Counties of Contra Costa, San Mateo, and Marin; and the Alameda County Waste Management Authority.

B. Marketing Plan

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

Local Government Outreach

Local governments throughout the Bay Area are invited to participate in the program. To recruit local government involvement, we will send a letter outlining the program and inviting participation to City Managers and City Administrators to the 50 largest cities in the Bay Area. We will follow up with a personal phone call and, depending on interest, a meeting with or presentation to the City Council and upper management. We will also cultivate strategic partnerships with local government groups such as the Association of Bay Area Governments and the League of California Cities as a strategy to generate interest via word-of-mouth and networking.

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.

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, Energy Action Program, 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.

We will also conduct outreach activities to this segment by hosting a display booth or table at selected conferences and related events targeted to affordable housing developers and local governments. For example, both Nonprofit Housing Association and League of California Cities host annual conferences for their respective constituencies. For budgeting purposes, we have assumed attendance at eight events and per-event booth rental fees of \$500.

Remodeling Contractor Outreach

We will 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.

Supplier Outreach

We will cultivate strategic partnerships with industry groups such as the Bay Area Green Building Supplier's Council as a strategy to generate interest via word-of-mouth and networking.

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.

C. Customer Enrollment

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. All identifiable participants will be provided with a Program disclosure form, a draft copy of which is attached as an appendix.

D. Materials

The program anticipates the development of the following education and outreach materials:

- Home builder education and outreach packet materials
- 50 local government outreach letters and materials
- 1 set of conference display materials
- Print advertisements in support of Green Home Tours and Ask An Expert
- 2,000 checklists
- 2,000 program brochures
- 2,000 Green Building guidelines
- 2,000 resource lists
- 1,000 fact sheets
- 400 case studies
- 225 training seminar curricula
- 50 point-of-purchase displays
- 4 kiosks
- Brownbag presentation materials
- Point-of-purchase educational materials
- Informational articles published in local daily, weekly, and monthly print media
- Green Home Tour materials
- 3 half-day workshop curricula
- Inspector training curriculum
- Community event presentation materials
- Presentation materials for elected and appointed local government officials

E. Payment of Incentives

This program will not pay financial incentives to program participants. Rather, it will rely on education and outreach to achieve program objectives.

F. Staff and Subcontractor Responsibilities

Frontier Associates

Frontier Associates will be the prime contractor for this program, In that capacity, Frontier will have primary responsibility for program development, program management, and contract reporting. Frontier will handle all expenditures related to production and printing of program materials and educational resources. Frontier will play a lead role with:

- Case study development
- Green Building measure cost development
- GAHC organizational support
- Media relations
- Attendance at affordable housing professional conferences
- Local government outreach
- Website development and maintenance
- Conference booth/display development
- Strategic partnerships with ABAG, League of California Cities
- Strategic partnerships with NPH, MF Housing Consortium, Energy Action, LISC

Frontier will play a supporting role on an as-needed basis with:

- Brownbag presentations
- Presentations to elected and appointed officials
- Community event presentation
- Point-of-purchase displays
- Referrals for Green/ENERGY STAR® homes, Green Building materials, certified contractors
- Green Home Tours
- Program brochure development
- Home builder education and outreach

Austin Energy

Austin Energy will play a lead role with:

- Fact sheet development
- Half-day workshop development and presentation

Environmental Technology Center (Sonoma State University)

The Environmental Technology Center (ETC) will have primary responsibility for program implementation activities in the North Bay, particularly Sonoma and Marin Counties. In that area, ETC will play a lead role with

- Half-day workshop development and presentation
- Brownbag presentations
- Presentations to elected and appointed officials
- Community event presentations
- Point-of-purchase displays
- Home builder education and outreach
- Inspector trainings
- Local government technical and organizational support
- Strategic partnerships with Building Industry Association, National Association of Home Builders, and North Coast Builders Exchange
- In-depth technical support for builders
- Referrals for Green/ENERGY STAR® homes, Green Building materials, certified contractors

ETC will play a supporting role on an as-needed basis with

- Green Building measure cost development
- Media relations
- Green Home Tours

Green Resource Center

GRC will play a lead role with

- Project-specific phone and email consultations
- Referrals for Green/ENERGY STAR® homes, Green Building materials, certified contractors

GRC may also serve as a co-sponsor for a Green Home Tour.

What's Working

What's Working will play a lead role with

- Brownbag presentations
- Presentations to elected and appointed officials

- Community event presentations
- Point-of-purchase displays
- Home builder education and outreach
- Inspector trainings
- Local government technical and organizational support
- Home builder education and outreach
- Strategic partnerships with ACWMA, NARI, Green Building Suppliers Council, Building Industry Association, National Association of Home Builders
- In-depth technical support for builders

What's Working will play a supporting role on an as-needed basis with

- GAHC organizational support
- Green Home Tours

Marketing/Communications Firm

We will hire a marketing/communications firm to assist with the following activities:

- Program brochure development
- Green Home Tours
- Get informational articles published in local daily, weekly, and monthly print media:
- Prepare event booth/display
- Home builder education and outreach packet development

G. Work Plan and Timeline for Program Implementation

Activity	Performance goal	2004				2005			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Attendance at affordable housing professional conferences	8 conferences	1	1	1	1	1	1	1	1
Brownbag presentations	12 presentations		1	2	2	2	2	2	1
Case study development	4 case studies		1		1		1		1
Community event presentations	50 presentations		3	6	8	8	9	8	8
Fact sheet development	18 fact sheets	1	2	3	2	3	2	3	2
GAHC organizational support	400 hours	50	50	50	50	50	50	50	50
Green Home Tours	Cosponsor 2 tours			1				1	
Documentation of actual installed costs of Green Building technologies	200 hours	50	100	50					
Half-day workshop development	3 topics	1	1	1					
Half-day workshop presentation	12 presentations		1	2	2	2	2	2	1
Home builder education and outreach		Ongoing							
In-depth technical support for builders	24 projects		2	3	4	4	4	4	4
Inspector trainings	10 training sessions		1	2	1	2	1	2	1
Local government outreach		Ongoing							
Local government technical and organizational support	600 hours	50	75	100	75	100	75	75	50
Media relations		Ongoing							
Point-of-purchase display development	1 set of content	1							
Point-of-purchase displays	50 displays		20	30					
Point-of-purchase display maintenance	4 visits to each display			20	30	50	50	50	
Presentations to elected and appointed officials	10 presentations	1	2	3	2	2			
Program brochure development	1 set of content	1							
Project-specific phone and email consultations	3,500 consultations	100	200	300	400	500	600	700	700
Website development and maintenance	500 hours	50	75	50	75	50	75	50	75

Section III. Customer Description

A. Customer Description

Local Governments

The Bay Area encompasses nine counties and 101 cities and towns. Almost 90 percent of the region's 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). The Association of Bay Area Governments is the primary member organization serving local governments at the regional level. It is also the designated Metropolitan Planning Organization. The California State Association of Counties and the League of California Cities serve their respective constituencies at the state level.

Residential Home Builders

For 1999 and 2000, builders constructed approximately 27,000 housing units each year in the Bay Area. Approximately two-thirds were single-family homes in 1999. That percentage declined to about 60 percent in 2000.

Metropolitan Statistical Area	1999			2000		
	Total	Single-family	Multi-family	Total	Single-family	Multi-family
Oakland CA PMSA	10,810	8,852	1958	9,533	7,256	2,277
San Francisco CA PMSA	4,392	1,664	2728	5,580	1,661	3,919
San Jose CA PMSA	6,880	3,323	3557	6,639	2,841	3,798
Santa Rosa CA PMSA	3,036	2,348	688	2,505	2,013	492
Vallejo-Fairfield-Napa CA PMSA	2,724	2,083	641	2,775	2,585	190
	27,842	18,270	9,572	27,032	16,356	10,676

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

- Beck Properties
- Centex
- Claremont Homes
- Shapell Industries
- Shea Homes
- Signature Properties

- Clarum Homes
- Greenbriar Homes
- Morrison Homes
- Ponderosa Homes
- Pulte Home Corporation
- Silverwood Homes
- Summer Hill Development
- The Hofmann Company
- Toll Brothers

Affordable Housing Developers

Affordable housing developers in the Bay Area 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 in Bay Area affordable 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

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.

Home Buyers

The number of households is projected to grow by 115,000 (5 percent) between 2000 and 2005 and by 512,000 (21 percent) by 2025.

County-level Household Forecast 2000–2025

County	2000	2005	2025	Change '00-'25	% Change '00-'25
ALAMEDA	523,366	543,400	611,680	88,314	17%
CONTRA COSTA	344,129	364,910	443,510	99,381	29%
MARIN	100,650	102,690	114,530	13,880	14%
NAPA	45,402	48,440	61,450	16,048	35%
SAN FRANCISCO	329,700	336,650	348,990	19,290	6%
SAN MATEO	254,103	260,960	288,920	34,817	14%
SANTA CLARA	565,863	596,760	695,170	129,307	23%
SOLANO	130,403	143,180	191,330	60,927	47%
SONOMA	172,403	184,390	222,410	50,007	29%
REGION	2,466,019	2,581,380	2,977,990	511,971	21%

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.

B. Customer Eligibility**Local Governments**

Eligible local governments include Bay Area cities, counties, and special districts served by PG&E.

Private and Nonprofit Sector

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

C. Customer Complaint Resolution

All public-sector and private-sector participants seeking advice, consulting, and technical support specific to their particular circumstances will be provided a disclosure form. The disclosure form will include an explicit complaint resolution process. A draft disclosure form is attached as an appendix.

D. Geographic Area

Our geographic focus covers the nine-county San Francisco Bay Area, which encompasses the counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma. Within this region, we will target our resources to areas where we can build on strategic partnerships, particularly with local and county governments. Those areas will get highest priority for activities such as outreach to media markets and materials suppliers. Expected target areas include:

- The I-680 corridor from San Ramon, north to Concord and Martinez, including the Lamorinda area along Highway 24
- The Highway 101 corridor from Sausalito, north through Santa Rosa
- City and County of San Francisco

We will provide technical support as needed to communities, local governments, and businesses within Alameda County but only with close coordination, advice, and consent of staff at the Alameda County Waste Management Authority.

Section IV. Measure and Activity Descriptions

This program will rely on education and outreach to achieve program objectives. It will not document specific measure installations as a result of the program.

A. Energy Savings Assumptions

Not applicable.

B. Deviations in Standard Cost-effectiveness Values

Not applicable.

C. Rebate Amount

Not applicable.

D. Activities Descriptions

Activity	Target	Per-unit Cost
Case studies	4	\$2,100.00
Information kiosks	4	\$12,500.00
Inspector training sessions	10	\$250.00
Presentations to elected and appointed officials	10	\$250.00
Half-day workshop presentations	12	\$1,200.00
Brownbag presentations to local government staff	12	\$250.00
Fact sheets	18	\$4,000.00
In-depth consultations with builders and developers	24	\$500.00
Presentations at community events	50	\$500.00
Point-of-purchase displays	50	\$750.00
Telephone and email consultations	3,500	\$22.50

- Case studies assume 40 hours per project at \$52.50 per hour.
- Inspector training sessions assume four hours per event at \$62.50 per hour.
- Presentations to elected and appointed officials assume four hours per event at \$62.50 per hour.
- Half-day workshop presentations assume 20 hours per workshop at \$50 per hour. Time allocation covers pre-event logistics as well as the presentation itself.
- Brownbag presentations to local government staff assume four hours per event at \$62.50 per hour.

- Fact sheets assume 80 hours labor each, at \$50 per hour.
- In-depth consultations with builders and developers assume eight hours per consultation at \$62.50 per hour.
- Presentations at community events assume eight hours per event at \$62.50 per hour.
- Point-of-purchase displays assume twelve hours per display at \$62.50 per hour. Time allocation includes time to negotiate placement and four return visits for maintenance.
- Telephone and email consultations 45 minutes per consultation at \$30 per hour.

Section V. Goals

Performance goals:

- Develop 18 fact sheets
- Compile four new case studies
- Present 12 half-day workshops
- Provide 3,500 project-specific telephone and email consultations
- Provide 24 in-depth consultations with builders and developers
- Make presentations at 50 community events
- Co-sponsor two Green Home Tours
- Install four information kiosks
- Install and maintain point-of-purchase materials at 50 sites
- Provide 400 hours of organizational support services to the Green Affordable Housing Coalition
- Provide 600 hours of support services to local governments
- Conduct ten inspector training sessions
- Conduct twelve brownbag presentations to local government staff
- Conduct ten presentations to elected and appointed officials
- Contribute 200 hours to documenting actual installed costs of various Green Building technologies

Section VI. Program Evaluation, Measurement and Verification

Frontier Associates nominates two candidates, Shel Feldman Management Consulting and Research Into Action, as potential EM&V contractors who can objectively evaluate program success. Neither candidate participated in discussions of this proposal and program design.

Shel Feldman Management Consulting. Dr. Shel Feldman is a sole proprietor, DBA as Shel Feldman Management Consulting (SFMC). SFMC is the current EM&V contractor for the 2002–2003 Green Building Technical Support Services program. Other than that evaluation, SFMC has never worked with or for Frontier Associates or any of its subcontractors. However, Dr. Feldman has worked with the program manager, Mr. Bruce Mast, when Mr. Mast was with another firm (Pacific Consulting Services, or PCS). At that time, Dr. Feldman served as a subcontractor to PCS for an evaluation project sponsored by the Northwest Energy Efficiency Alliance and for a market research project sponsored by Pacific Gas & Electric. Dr. Feldman and Mr. Mast are currently both subcontractors to Quantum Consulting on the Best Practices Study. Neither of those projects is related to the subject of the Green Building Program. We do not believe this prior relationship compromises the independence of SFMC.

Research Into Action. Dr. Jane Peters is principal at Research Into Action (RIA). RIA has never worked with or for Frontier Associates or any of its subcontractors. However, Dr. Peters has worked with the program manager, Mr. Bruce Mast, when Mr. Mast was with PCS. At that time, Dr. Peters managed a Summary Study of California energy efficiency programs and PCS served as a subcontractor. Dr. Peters and Mr. Mast are currently both subcontractors to Quantum Consulting on the Best Practices Study. Neither of those projects is related to the subject of the Green Building Program. We do not believe this prior relationship compromises the independence of RIA.

A. EM&V Objectives

The program evaluation will accomplish the following objectives:

- Providing ongoing feedback, and corrective and constructive guidance regarding the implementation of program
- Measure indicators of program effectiveness, including testing of the assumptions that underlie the program theory and approach
- Assess the overall levels of performance and success
- Inform decisions regarding compensation and final payments
- Assess continuing need for the program

B. Baseline Information

Baseline information is available from the 2002-2003 Program Implementation Plan. That document provides a summary of national, state-level and local Green Building initiatives,

provides regional projections for job and housing growth, and provides an assessment of local Green Building program needs and constraints.

C. Energy Efficiency Measure Information

Not applicable.

D. Measurement and Verification Approach

Not applicable.

E. Evaluation Approach

Evaluation activities will focus on reviewing program documentation and interviewing participants and others with detailed knowledge of program activities. The focus of these activities will be to address the five evaluation objectives, as described below.

Ongoing program implementation feedback

Midway through program implementation, the program evaluator will conduct a series of interviews with participants and industry experts with detailed knowledge of program activities. These interviews will elicit feedback on the strengths and weaknesses of program design and implementation, which will form the basis for a series of recommendations for improving program delivery. Interviews will address the following questions:

- How did you learn about the program?
- Were there other ways they could have contacted you that would have fit better with your organization's needs? (IF SO, What were they?)
- Did the people marketing the program to your organization understand your organization's needs, decision processes, schedules, capabilities, and constraints?
- How could they have improved their outreach effort?
- What did you see as the strongest arguments for your organization to consider participating? What arguments did you find less compelling?
- What other issues (e.g., constraints, timing, resource needs, competing opportunities) were of concern to your organization when deciding to participate? How were these dealt with?
- What were the most important reasons that your organization decided to participate/not participate in the program?
- How has the program contributed to the development and maturation of local institutions for promoting Green Building?
- How might the program be further institutionalized? To what extent and for what purposes would continuing external support be needed? For how long?

- How can the web site be used to encourage interaction with visitors/users and diffusion of information?
- How might program costs be reduced?

Indicators of program effectiveness

At the end of the two-year program implementation cycle, the program evaluator will conduct a second series of interviews with an expanded list of participants, nonparticipants, and industry experts with detailed knowledge of program activities. These interviews will elicit feedback on the strengths and weaknesses of program design and implementation and overall program effectiveness. The program evaluation will address the following marketing-related questions:

- How did you learn about the program?
- Were there other ways they could have contacted you that would have fit better with your organization's needs? (IF SO, What were they?)
- Did the people marketing the program to your organization understand your organization's needs, decision processes, schedules, capabilities, and constraints?
- How could they have improved their outreach effort?
- What did you see as the strongest arguments for your organization to consider participating? What arguments did you find less compelling?
- What other issues (e.g., constraints, timing, resource needs, competing opportunities) were of concern to your organization when deciding to participate? How were these dealt with?
- What were the most important reasons that your organization decided to participate/not participate in the program?

The program evaluation will address the following questions related to program design and implementation:

- How has the program contributed to the development and maturation of local institutions for promoting Green Building?
- How might the program be further institutionalized? To what extent and for what purposes would continuing external support be needed? For how long?
- How can the web site be used to encourage interaction with visitors/users and diffusion of information?
- What non-energy benefits do participants recognize as accruing to their own organizations as a result of the program? (e.g., generalizable training, ability to meet other organizational objectives?) Can they put a value on those benefits? If so, what range of non-energy benefits do they cite?

The program evaluation will address the following questions related to CPUC policy objectives:

- To what extent—and how—does a program focused on “green” issues expand or multiply opportunities for and interest in energy efficiency? What non-energy benefits are realized?
- What specific types of energy savings emerge from addressing energy efficiency concerns through a Green Buildings program? What demand savings are likely?
- Of the energy and demand savings specified, which are likely to be sustainable? What additional support would be needed to increase their sustainability?
- What market barriers reduce the likelihood of their sustainability? How might those be addressed and mitigated or overcome within the program context?
- How might program costs be reduced?
- In what specific ways do participating communities address hard-to-reach customers with these programs?
- What is the demand for continuation or expansion of the program? In other words, have participants discussed the program and its benefits with peers (Is there peer-to-peer marketing/spillover, etc.)? If so, do they perceive that their peers recognize a need for the services offered and that they would participate in future program offerings or opportunities?

Assessment of the overall performance and success

The evaluator will review the Program’s monthly and quarterly progress reports and supporting documentation to determine the program’s effectiveness at meeting specified performance targets.

Determination of compensation and final payments

The previously described evaluation activities should provide sufficient information for the CPUC to determine whether the program implementer has met threshold criteria for receiving full compensation.

Assessment of continuing program need

The proposed interviews include questions that specifically address the program’s success at developing local institutions for promoting Green Building, prospects for further institutionalization, and the expected resource requirements for that process. This information should permit the evaluator to make an informed assessment of continuing program need.

EM&V Timeline

Activity	Time frame
Select EM&V Contractor	Q1, 2004
Develop EM&V Plan	Q1, 2004
Develop Survey Instruments	Q2, 2004
Conduct Phone Interviews	Q4, 2004
Analyze Survey Data	Q4, 2004
Provide Feedback to Implementer	Q1, 2005
Provide Interim EM&V Memorandum	Q1, 2005
Conduct Phone Interviews	January, 2006
Analyze Survey Data	February, 2006
Prepare and Submit Draft EM&V Report	March, 2006
Prepare and Submit Final EM&V Report	March, 2006

Section VII. Qualifications

A. Primary Implementer

Frontier is a leading consultant to electricity retailers, electricity distribution companies, power generators, natural gas distributors, electricity and gas consumers and manufacturers of energy efficiency related products. Key elements of our client services include program design, implementation, and evaluation, along with the market research required to support those activities. Two recent projects are particularly illustrative of the skills that will be required for this program:

- In 2001, Frontier Associates implemented a low-income weatherization program for Reliant Energy HL&P. Frontier performed a variety of energy efficiency services, including high-efficiency refrigerator and air conditioner installations, attic insulation, and compact fluorescent lighting. The program treated over 1,000 homes, and resulted in over 1.3 million kWh in annual energy savings. Participating local governments receive technical assistance to establish program development teams and technical advisory committees, develop implementation plans and marketing and outreach plans, train their in-house staff and private-sector counter-parts, compile and develop supporting educational resources and tools, and establish a program tracking system.
- In 1998, Frontier Associates (then part of Planergy, Inc.) assisted Southern California Gas Company with its investigation of new-home marketing packages offered by national organizations and the Federal Government. This study produced a new program design to encourage the construction of homes that make efficient use of finite natural resources in southern California. The program design was intended to promote water conservation, energy efficiency, health and safety, environmental affinity, and advanced design. Frontier's role in the study was to provide (1) market assessment; (2) evaluation of alternative energy rating systems, including Model Energy Code (MEC), Home Energy Rating System (HERS), California Home Energy Efficiency Rating System (CHEERS), the Environmental Protection Agency's ENERGY STAR® program, and California's Title 24 code baseline; (3) development of program guidelines for three-tiered program standard; and (4) an evaluation plan, including process and impact evaluations.

Program management responsibilities for the Green Building Technical Support Services program will be handled through Frontier's Oakland, California, office.

B. Subcontractors

Austin Energy

The mission of Austin Energy's Green Building Program over the past ten years has been to accelerate the integration of sustainable building products and practices with mainstream building through marketing, education, and technology transfer. We encourage construction

professionals and consumers to incorporate sustainable building practices, systems, and materials into residential, multi-family, commercial, municipal/institutional, and affordable housing, all within new and retrofit construction. Our success is due to the fact that we are promoting “win-win” propositions: improved building quality, reductions in utility bills, reduced maintenance costs, improved indoor air quality, and resource conservation. This positive, market-oriented approach brings interested buyers and informed building professionals together, stimulating voluntary improvements and maintaining a working relationship between the building industry, utility, and municipal government, while increasing the overall understanding of the public on the issues of sustainable community development.

The Green Building Program staff is recognized internationally for expertise in “green” construction. The background of our team is made up of the full spectrum participants in the building industry with architects, builders, engineers, government policy-makers, marketers, businesspeople, educators, project managers, and also consumers. Our experience covers residential (affordable, speculative, and custom), multi-family, commercial, high-tech, and institutional. All of our team members have strong experience in the realities of developing, writing, marketing, and implementing guidelines and programs effectively. We strongly emphasize regional appropriateness and developing educational efforts that are designed specifically for the local conditions. We all have many years of field experience and know what building professionals and consumers will and will not accept. We offer a unique and highly qualified team with a broad range of talents.

Environmental Technology Center

The Environmental Technology Center, sponsored by Sonoma State University’s Department of Environmental Studies and Planning, focuses on applied research and public education related to Green Building, energy efficiency, and sustainable economics. The ETC hosts a variety of workshops, lectures and events intended to inspire and instruct individuals on the value and use of sustainability principles, including Green Building design and construction, energy efficiency and renewable energy technologies.

The ETC conducts considerable market research and public outreach in the North Bay. These activities have permitted ETC to develop a network of contacts and resources that can be tapped to deliver services envisioned in this proposal. For example, the ETC, in partnership with the Redwood Empire Green Building Council, is hosting a Green Building expo to highlight Green Building design and materials, renewable energy, and energy efficiency.

Along with increasing public awareness, the ETC offers students, researchers, and professionals in the building and energy sector an opportunity to gain further understanding and practical experience with implementing green design so that today’s state-of-the-art may become tomorrow’s standard building practice. Beginning the Spring Semester of 2003, the ETC began offering a course in Green Building Design and Construction, taught by Armando Navarro and a local architect and general contractor. This course provides an in-depth exploration of the social, economic, and environmental issues related to the design and construction of residential and commercial buildings.

The ETC is housed in a state-of-the-art facility that demonstrates the practicality of building principles the program advocates. Through sustainable building techniques and a wide range of design features that minimize energy use, the facility is projected to consume only 20 percent of the energy allowed by state code for similar buildings. These “Green Building” features include environmentally responsible building materials, passive solar heating and cooling, daylighting and shading, advanced window systems, “smart building” control technologies, photovoltaic electricity, and energy and water-efficient landscaping.

Green Resource Center

The mission of the Green Resource Center (GRC) is to spur the market for Green Building in the San Francisco Bay Area by educating building professionals and the general public on the numerous environmental, health, and economic benefits of Green Building. The GRC acts as a central hub linking consumers with all aspects of the Green Building industry, channeling market demand into action.

Since it opened its doors on Earth Day 1999, dedicated and knowledgeable Green Building experts have donated over 13,000 hours to the GRC. Today, the GRC is operated by a knowledgeable full-time staff, which is assisted by an active board of directors and the continued dedication of many volunteers.

As part of an innovative pilot program developed principally for the City of Berkeley, the GRC’s Ask An Expert program provides a hotline service answering telephone and email questions about Green Building. Since April of 2002, it has served over 600 homeowners, architects, contractors, developers, institutions, and other interested parties, providing customized information about various green materials, technologies, techniques, and programs. The GRC maintains a database that tracks visitor categories and the types of questions submitted.

As a part of the Ask An Expert program the GRC developed and continually updates a website (www.GreenResourceCenter.org) that provides in-depth information about Green Building products and methods to improve the environmental performance of specific projects. The website has considerably extended the GRC’s capability to provide detailed information on Green Building. Currently over 3,000 visitors per month spend an average of three minutes at the site, using the fact sheets and the other resources.

Through the Berkeley’s Best Builders program, the GRC has provided introductory design assistance to developers of commercial and multi-family housing projects in the City of Berkeley. The GRC helps owners and designers adopt healthier and more resource efficient design strategies, technologies, and materials. Since March 2001 the Berkeley’s Best Builders program has served 36 projects totaling more than 1.6 million square feet. As a member of the US Green Building Council, the GRC structures all of its commercial Green Building technical assistance using the LEED™ rating system.

Other resources at the GRC include Green Building workshops, a thorough reference library of books and periodicals, and an extensive “petting zoo” of samples of a great variety of construction and finish green materials.

Research Into Action

Research Into Action, Inc. is a social marketing and evaluation research firm specializing in implementing field research projects and working with clients to translate the research into actionable plans and products. Research Into Action, Inc. specializes in research related to energy, the environment and social issues. Research Into Action helps organizations in three areas: understanding people's behaviors and motives through reliable research; developing research findings to directly support decision-making and implementation; and working with clients to understand and remedy organizational impediments to action.

Staff member of Research Into Action have conducted over 2,000 executive interviews with residential homeowners and renters, commercial and industrial firms, and government agency staff. Dr. Peters has conducted over 80 focus groups. Research Into Action oversees the implementation of mail surveys and telephone surveys with homeowners, renters and commercial and industrial firms.

Shel Feldman Management Consulting

Dr. Shel Feldman is an independent consultant, specializing in market research, evaluation, and communications research for clients in the energy industry. Prior to establishing his consultancy, Dr. Feldman served for five years as the Executive Director of the Wisconsin Center for Demand-Side Research (now, the Energy Center of Wisconsin), a non-governmental non-profit founded by both electric and gas utilities in the state, the Public Service Commission, and the University. Prior to that, he worked for such major consulting companies as Booz-Allen & Hamilton, in its National Analysts Division, and Arthur D. Little, at its Opinion Research Corporation subsidiary. His technical skills include both quantitative research methods (survey development, multivariate analysis, modeling, etc.) and qualitative approaches (depth interviewing, focus group facilitation, content analysis, etc.).

Dr. Feldman's consulting experience includes projects with national organizations such as ENERGY STAR®, EPRI, and the Consortium for Energy Efficiency, as well as public agencies, non-governmental organizations, and utilities in those regions where energy-efficiency activities are most vibrant, including California, Massachusetts, the Pacific Northwest, Wisconsin, and New York. In these assignments, he has dealt extensively with issues relating to market assessment, market effects, program design, and communications in the residential, commercial, institutional, and industrial sectors, addressing various energy-efficiency service offerings, technologies, and products. His publications include articles and book chapters on market segmentation and its applications to the energy industry and the initial articulation of the proximate indicators concept for market transformation programs, along with important discussions of the role of "the story" in market assessment, attribution of market effects, and sustainability. His expanded discussion of the value and use of program logic is included in the recent monograph, "A Framework for Planning and Assessing Publicly Funded Energy Efficiency," commissioned by CALMAC.

Dr. Feldman took his Ph.D. from Yale University and his B.A. from Northwestern, after which he taught psychology, communications, and research methods for seventeen years, rising to the rank of full professor.

What's Working

What's Working, is a Green Building design and consulting firm specializing in energy conservation, environmental construction technology and sustainable community development. Services include policy development, program design, environmental management systems and ISO 14000 program development, design consultation, energy calculations, building materials specifications, marketing, media relations and training. Its chief staff, David Johnston and Marc Richmond, are two of the national policy and educational leaders in the residential Green Building market, having co-chaired the US Green Building Council's LEED-Residential Steering Committee.

What's Working has worked with the Alameda County Waste Management Authority for the last five years developing green guidelines, training and marketing effort for residential remodeling and new homes. To date over 1,000 homes in the County have been built using the guidelines. What's Working has provided training programs to all facets of the home building industry; architects, developers, builders, remodelers, realtors, home inspectors, and product manufacturers, suppliers and retailers. No other firm has worked as extensively in the residential arena.

C. Resumes and Bios

Bruce Mast directs Frontier's Green Building Technical Support Services Program, a CPUC-funded education and outreach initiative to help local governments promote construction and remodeling practices that maximize energy efficiency, water conservation, indoor air quality, resource conservation, and overall sustainability. In that capacity, he organized the Green Affordable Housing Coalition, made up of local governments and affordable housing developers from around the San Francisco Bay Area. Mr. Mast also serves on the Board of Directors of the Green Resource Center.

With twelve years of professional experience in the energy efficiency arena, Mr. Mast has established a reputation for rigorous research and client-friendly project management. At Frontier, Mr. Mast contributes key technical expertise for market research, competitive assessment, marketing/business plan development, program design and implementation, and monitoring and evaluation services. He is Frontier's point person on a CPUC-funded nationwide study of best practices in energy efficiency program design and implementation.

Prior to joining Frontier, Mr. Mast was VP at Pacific Consulting Services, where he directed all facets of market research and program evaluation activities. In this capacity, he directed development of recommendations to harness market forces to improve energy efficiency in California's new construction industry. He also authored a major portion of a report reviewing and summarizing fourteen groundbreaking market effects studies in California. His market research activities extended from construction practices to evaporative cooling technologies to residential light fixtures. His program evaluation activities covered the spectrum, from new construction to retrofit, from impact to process evaluation, from residential to commercial and industrial, from incentives to information programs. Mr. Mast earned his B.A. in Physics at Rice University, Houston, Texas, in 1988.

David Johnston is the founder and president of What's Working. For 25 years he has been in the construction industry designing, building and consulting on environmental construction. As founder of Lightworks Construction, Inc. he was named one of the top 50 contractors in the country by Remodeling Magazine. He studied with Buckminster Fuller at Southern Illinois University, graduating with a degree in Environmental Systems Design. He was a co-author of the Denver HBA Green Builder Program and is past chair of the committee that conducts the program. What's Working was named the Boulder Chamber of Commerce's Environmental Business of the Year and the Boulder HBA's Associate member of the year in 1996. The firm received the prestigious Corporate Excellence Award from the University of Colorado in 1998, and was named Guild Member of the Year by the State of Colorado Venture Center in 1999. His book, *Building Green in a Black and White World* was published by the National Association of Home Builders Press in 2000. He is currently Senior Editor of Construct! Magazine.

Marc Richmond is a Project Manager for What's Working. He provides consulting services in the areas of Green Building program design and management, design assistance, workshops and training, and technical resource development. He specializes in developing technical resources, public education, and in training design and construction professionals in implementing and marketing Green Building strategies.

Before joining What's Working, he staffed and managed the City of Austin's Green Building Program for the past six years. The program is the largest and oldest such program in this country, educating building professionals and the public in all sectors of the industry including affordable and market-rate residential and multi-family, municipal, and commercial. Mr. Richmond's responsibilities included managing a staff of 11 professionals, a \$1.3 million budget, adopting Green Building Policies and managing the program's educational component for City departments, building professionals and the general public. During his tenure, he also doubled the size of the program, managed the development of the educational Green by Design CD-ROM, developed the third generation residential rating system, initiated the Manage It Green consulting services division, and has been the primary Green Building technical consultant of the Frontier Associates - Austin Energy Green Building Technical Services Program for the last 1.5 years in the Bay Area.

Mr. Richmond was also the first chair of the US Green Building Council's LEED-Residential Steering Committee. He has taught numerous professional seminars and workshops on various Green Building topics and has also taught university courses in Green Building and residential construction at the University of California at Los Angeles and at Southwest Texas State University.

Mr. Richmond holds an M.B.A and an M.A.P.P. in Energy and Environmental Policy from the Claremont Graduate University and a B.A. in Economics from Moravian College.

Richard MacMath. Mr. MacMath is a registered architect in the State of Texas and the Austin Energy Green Building Program's Residential Program Specialist. In that capacity, his is responsible co-organizing a monthly Green Building education seminar series; recruitment of new residential program members; design consultation, inspection, and rating services to members; and technical assistance to the general public. Mr. MacMath is the

Green Building Program's representative for assigned architect and designer members and acts as Program liaison to the Austin AIA. His writing responsibilities include revisions to the Single-Family Residential Rating and Guide and various conference submittals, technical reports, and fact sheets.

Prior to joining Austin Energy in 2002, Mr. MacMath spent ten years with the Center for Maximum Potential Building Systems in Austin, Texas, where he was the Project Architect and Architect of Record. During that time, his professional responsibilities included the following:

- Sustainable architecture consultant for commercial and educational projects
- LEED™ rating review for commercial and office buildings
- Project director for design of custom single-family residences
- Project director for State of Texas Sustainable Resources Database
- BaselineGreen™ building materials and products life cycle assessment tool
- EPMAP environmentally preferred materials and products database
- Eco-Balance™ ecological land planning tool

Liana Kallivoka, Ph.D. Dr. Kallivoka is a sustainability consultant with the Green Building Program's Commercial division educating and advising building industry professionals on design practices, innovative products, advanced technologies, and construction methods that lead to energy and resource efficient structures. Her primary focus is on economically viable practices that lead to quality built environments, while preserving the natural resources and enhancing the occupants' well-being and productivity.

Prior to her joining Austin Energy, Dr. Kallivoka was the Director of Research and Project Manager for KSBA Architects, where she conducted research on indoor environmental quality issues and sustainable design methods, and managed pilot projects for the General Services Administration (GSA) and Hunt Power, LP. Several of the projects she has participated in have gained national and international recognition for implementing advances in environmental sustainability, individual comfort and productivity, and technological adaptability.

Dr. Kallivoka's relevant experience includes

- Managed projects for GSA and Hunt Power that called for a quality workplace while preserving the natural resources. Coordinated the LEED™ certification process for commercial projects and promoted environmental and Green Building issues through publications and newsletters.
- Created a cost-benefit analysis framework to evaluate building systems options in relation to capital costs, operational expenses, tax depreciation, and productivity, health, and environmental benefits.

- Researched and analyzed the daylighting and lighting impact on total building performance for the “Intelligent Workplace”, an award winning demonstration facility at Carnegie Mellon University.
- As a member of a multi-disciplinary team, evaluated three Department of Energy facilities in Washington, D.C. and proposed retrofit and rehabilitation alternatives to improve building performance and occupant comfort.

Dr. Kallivoka holds a Bachelor’s degree in Architecture from the National Technical University of Athens, Athens, Greece. She then went on to earn her MS in Building Performance and Diagnostics, and a Ph.D. in Architecture from Carnegie Mellon University, Pittsburgh, PA. Her publications include articles in the Journal of the IESNA, ASHRAE / DOE Proceedings, IBPSA Proceedings, IESNA Proceedings, CLIMA Proceedings, and the Architecture In Greece Journal. Dr. Kallivoka is a LEED™ Accredited Professional.

Armando Navarro serves as Assistant Director at the Environmental Technology Center (ETC), Sonoma State University. In that capacity, he administers day-to-day operations of the ETC; develops and administers the “Green Building Design and Construction” certificate program; develops and administers professional-level lecture and workshops offerings related to energy efficiency, renewable energy and Green Building for building and design professionals; and conducts educational and public outreach activities for the ETC in the North Bay region. He is also responsible for developing and co-teaching the “Green Building Design and Construction: An Overview” course and the “Identifying and Specifying Green Building Materials” course.

Prior to joining the SSSU faculty in 2000, Mr. Navarro served as Regional Marketing & Sales Manager for Green Mountain Energy’s San Francisco office. There, he managed renewable energy sales and marketing activities in four North Bay. His responsibilities entailed development of marketing and promotional partnerships with other companies, organizations, and community groups. He also identified public events for direct customer sales and education, and developed weekly, monthly, and overall sales strategy for the sales territory.

Mr. Navarro also serves in the following Green Building-related roles:

- Board of Directors, Vice-Chair - U.S. Green Building Council, Redwood Empire Chapter.
- Development Team, Training & Education Committee – City of Santa Rosa Green Building Plan.
- Green Building Team – Habitat for Humanity, Sonoma County Chapter
- Marketing Team - Small Business Energy Alliance (SBEA), RLW Analytics

Ed Gulick. Since joining the Green Resource Center in early 2002, Mr. Gulick has developed the Ask An Expert program and the second phase of the Berkeley’s Best Builders program. He received his Masters of Architecture from Yale University in 1998. While in school, he developed a strong background in the theory of energy-efficient design and was a teaching assistant for the Fundamental Principles of Environmentally Responsible Design.

Through his involvement at the Yale Urban Design Workshop he also coordinated a community design workshop. Subsequently he worked at award-winning green architecture firm Siegel & Strain Architects, where he became familiar with the range of Green Building materials.

Dr. Jane Peters has over 20 years of experience conducting all phases of research employing both qualitative and quantitative research methods. She is currently president of Research Into Action, Inc. a market and evaluation research firm based in Portland, Oregon.

Dr. Peters is particularly well known for her many process and market evaluations of energy efficiency and environmental programs. She has conducted evaluations of energy products and services for all sectors: residential, commercial, industrial, and agricultural. Her responsibilities have included designing research programs, writing survey instruments and data collection protocols for all types of data collection activities, analysis of quantitative data using advanced statistical methods and qualitative data using established methods.

Dr. Peters has experience with energy efficient building practices beginning with being a member of the team that evaluated the MCS implementation in Tacoma, Washington in the early 1980s, and principal investigator on a comparative process evaluation of four research and demonstration efforts for energy efficient building practices, both for the Bonneville Power Administration in the late 1980s. Dr. Peters was also principal investigator of the process evaluation of the ACT2 program for Pacific Gas and Electric in the early 1990s. During the late 1990s she conducted numerous market transformation studies of commercial and residential building programs and currently is the lead investigator for a large team conducting process evaluations for all of NYSERDA's programs over the next two to four years.

Dr. Shel Feldman. See corporate qualifications, above.

Section VIII. Budget

Budget Heading / Item	Total
Administration	
Labor	\$96,235
Benefits	\$16,024
Payroll Tax	\$16,024
Pension	\$16,024
Travel	\$1,190
Conference Fees	\$4,000
Subcontractor Labor	\$224,867
Subcontractor Benefits - Administrative Labor	\$47,008
Subcontractor Payroll Tax	\$47,008
Subcontractor Pension	\$47,008
Subcontractor - Travel	\$52,950
Administration Total	\$568,338
Marketing and Outreach	
Brochures	\$4,550
Labor - Business Outreach	\$14,858
Print Advertisements	\$10,000
Subcontractor Labor - Business Outreach	\$17,176
Website Development	\$22,650
Marketing and Outreach Total	\$69,234
Direct Implementation	
Direct Implementation Literature	\$10,000
Education Materials	\$80,300
Labor - Curriculum Development	\$16,335
Labor - Customer Education and Training	\$30,765
Subcontractor Labor - Curriculum Development	\$100,499
Subcontractor Labor - Customer Education and Training	\$178,631
Subcontractor Labor - Facilities Audits	\$9,344
Direct Implementation Total	\$425,874
EM&V	
Benefits - EM&V Labor	\$3,359
Labor - EM&V	\$23,996
Materials - EM&V	\$500
Overhead - EM&V	\$13,918
Payroll Tax - EM&V Labor	\$3,359
Pension - EM&V Labor	\$3,359
Travel - EM&V	\$1,300
EM&V Total	\$49,793
Grand Total	\$1,113,238

The overall proposed budget for the described scope of work is \$1,113,238. That amount will be allocated to subcontractors in roughly the following proportions:

- Frontier Associates and miscellaneous subcontractors 30%
- What's Working 22%
- Austin Energy 18%
- Green Resource Center 17%
- Environmental Technology Center 5%
- Marketing/communications contractor 2%
- Evaluation contractor 4%

The following sections provide detailed explanations of activities and costs associated with various budget items.

Marketing and Outreach Expenditures

Business outreach includes all labor costs associated with marketing and outreach. This category includes the following activities:

- Home builder education and outreach packet preparation
- Builder outreach
- Conference display development
- Affordable housing professional conference attendance
- Local government recruitment
- Strategic partnerships

Brochures include production, printing, and other hard costs for materials associated with marketing and outreach activities. This category includes the following assumptions:

- Home builder education and outreach packet materials
- Local Government Outreach letters and materials
- Conference display materials

Print advertisement expenditures will be in support of Green Home Tours and Ask An Expert services.

Website maintenance is included as a marketing expenditure to conform to CPUC budget template specifications. However, in practice, the Green Building website will continue to be a core element of our education strategy since it will serve as a repository for all new educational content the program develops. Website maintenance activities include the following tasks:

- Periodically update program status descriptions for local governments and housing developers
- Maximize website visibility by optimizing search engine results and encouraging other websites to provide links
- Add new Feature articles (monthly, 24 articles total)
- Update calendar (monthly, 24 updates total)
- Test links to other websites, update and enhance, as necessary (every 6 months, 4 times total)
- Incorporate all new educational content the program develops

Direct Implementation Expenditures

Curriculum development includes all preparation and content development activities associated with direct implementation tasks. This category includes

- Brown-bag lunch presentation preparation
- City Council presentation preparation
- Community event presentation preparation
- Compile data documenting actual installed costs of various Green Building technologies
- Content preparation and logistics for half-day workshops
- Case study development
- Point-of-purchase display development
- Program brochure content development
- Compilation of referral lists for Green/ENERGY STAR® homes, Green Building materials, NARI- and CBPC-certified contractors
- Fact sheet development
- inspector trainings preparation

Customer Education and Training activities include

- Brownbag presentations
- Maintain point-of-purchase educational materials
- Local government technical and organizational support
- GAHC organizational support
- Get informational articles published in local daily, weekly, and monthly print media:
- GRC project-specific consultations

- Green Home Tours labor
- Half-day workshops
- Inspector trainings
- Presentations at community events
- Presentations to elected and appointed local government officials

Organizational activities in support of the Green Affordable Housing Coalition include the following activities:

- Maintain and cultivate a peer network for information exchange via email listserv and bimonthly meetings with NPH's Sustainable Development Working Group.
- Prepare twelve half-hour presentations on selected technical challenges, to be presented at bimonthly Coalition meetings. Presentations will also be posted to the website.
- Provide ongoing staff support for the Coalition steering committee, including assistance in forming a permanent organizational relationship with an existing nonprofit that has a compatible mission.

Direct Implementation Literature reflects hard costs for Green Home Tour materials.

Education Materials includes production, printing, and other hard costs for materials associated with direct implementation activities. This category includes the following assumptions:

- 2,000 checklists
- 2,000 brochures
- 2,000 guidelines
- 2,000 resource lists
- 1,000 fact sheets
- 400 case studies
- 225 training seminar curricula
- 50 point-of-purchase displays
- 4 kiosks

Facilities Audits reflects time spent providing project-specific consultations and advice to builders. Activities include but are not limited to on-site inspections.

Appendix: Draft Disclosure Statement

Funding. The Green Building Technical Support Services program is funded by California ratepayers under the auspices of the California Public Utilities Commission.

No full-fee services. Services are provided to Program participants at no charge. Participants are not obligated to purchase any full-fee service from Frontier Associates, from Austin Energy, or from any other program subcontractors or affiliates as a condition of receiving services.

Term. PUC funding for the Program expires on December 31, 2005.

Reporting. Program activities will be documented in quarterly reports Frontier submits to the PUC. These reports are made public on Frontier's website at www.frontierassoc.com.

Evaluation, Monitoring, and Verification. As a condition of Program funding, Frontier is required to hire an independent evaluator to evaluate, monitor, and verify program activities and performance. Program participants may be asked to cooperate with those evaluation, monitoring, and verification efforts.

Intellectual property. The CPUC shall own all data, reports, information, manuals, computer programs, works of authorship, designs or improvements of equipment, tools or processes (collectively "Developments") or other written, recorded, photographic or visual materials, or other deliverables produced in the performance of this Program.

Disclaimer. All information and technical assistance provided by this program are provided for general education and informational purposes only and do not constitute an endorsement, approval, or recommendation of any kind. The actual suitability and applicability of this information for a given use depends upon a host of project-specific considerations. Frontier Associates, LLC, and its subcontractors disclaim all warranties, express or implied, and strongly encourage the service recipient to consult with a construction professional and/or product supplier before applying any of this information to a specific use or purpose.

No double-dipping. As a condition of Program funding, Frontier is required to minimize or eliminate "double-dipping." To assist Frontier in meeting this requirement, participants in the program may not accept other Public Goods Charge (PGC) funds for the same tasks that Frontier performs and should report to Frontier any other PGC funds used to develop its Green Building programs.

Complaints. Program participants may direct any questions or complaints regarding the program directly to Bruce Mast, Frontier Program Manager, 510-271-4785, bmast@frontierassoc.com. In the event that Frontier is unable to resolve the complaint, participants may then direct the complaint to the PG&E Business Customer Center at 800-468-4743. In the event that PG&E is unable to resolve the complaint, participants may direct the complaint to NAME, CPUC Agreement Representative, PHONE, EMAIL.

Additional information. The Green Building Technical Support Services Program proposal, implementation plan, and quarterly progress reports are posted on the internet at <http://www.frontierassoc.com/GreenBuilding.shtml>.