

PROPOSAL FOR GREEN BUILDING EDUCATION AND TECHNICAL ASSISTANCE PROGRAM

Prepared for

**California Public Utilities Commission
San Francisco, California**

Confirmation Number:

KEMA-XENERGY PROPOSALS SUBMITTED

Program Name	Utility Area(s)
Comprehensive Compressed Air Program	PG&E, SCE, SDG&E
EEOGOV B.E.S.T. Program	PG&E, SCE
Enhanced Automation Initiative	PG&E, SCE
Green Building Education and Technical Assistance Program	PG&E
Positive Energy Loan Program	PG&E
Wastewater Treatment Improvement Program	PG&E, SCE

Contact Person

Darren Bouton, KEMA-XENERGY
492 Ninth Street, Oakland, CA 94607
510-891-0446
dbouton@kema-xenergy.com

Prepared by

**KEMA-XENERGY Inc.
Oakland, California**

September 23, 2003

SECTION 1	PROGRAM OVERVIEW.....	1-1
1.1	Program Concept	1-1
1.2	Program Rationale	1-1
1.2.1	Green Building Sells Energy Efficiency.....	1-1
1.2.2	Addressing Market Supply and Demand-Side Barriers.....	1-2
1.2.3	Leveraging Green Building Momentum.....	1-5
1.2.4	Conclusion	1-5
1.3	Program Objectives.....	1-6
SECTION 2	PROGRAM PROCESS	2-1
2.1	Program Implementation	2-1
2.1.1	Training.....	2-1
2.1.2	Technical Assistance.....	2-3
2.1.3	General Education and Support	2-4
2.1.4	Coordination with Other Programs.....	2-5
2.2	Marketing Plan.....	2-5
2.2.1	Local Government	2-5
2.2.2	Architects	2-6
2.2.3	Builders and Developers.....	2-6
2.2.4	Product and Service Suppliers	2-6
2.2.5	Homeowners and the General Public.....	2-6
2.2.6	Marketing/Outreach Materials.....	2-6
2.3	Customer Enrollment.....	2-6
2.4	Materials	2-7
2.5	Payment of Incentives.....	2-7
2.6	Staff and Subcontractor Responsibilities	2-7
2.7	Work Plan and Timeline for Program Implementation	2-9
SECTION 3	CUSTOMER DESCRIPTION.....	3-1
3.1	Customer Description	3-1
3.1.1	Technical Project Assistance	3-1
3.1.2	Education and Training.....	3-1
3.2	Customer Eligibility.....	3-1
3.3	Customer Complaint Resolution.....	3-1
3.4	Geographic Area	3-2
SECTION 4	MEASURE AND ACTIVITY DESCRIPTIONS.....	4-1
4.1	Energy Savings Assumptions	4-1

4.2	Deviations in Standard Cost-Effectiveness Values.....	4-1
4.3	Rebate Amounts.....	4-1
4.4	Activities Descriptions.....	4-1
SECTION 5	GOALS.....	5-1
5.1	Municipal Support Targets	5-1
5.2	Training Targets.....	5-1
5.3	Technical Assistance Targets.....	5-1
SECTION 6	PROGRAM EVALUATION, MEASUREMENT AND VERIFICATION (EM&V).....	6-1
6.1	EM&V Objectives	6-1
6.2	Energy Efficiency Measure Information	6-1
6.3	Measurement and Verification Approach.....	6-1
6.4	Evaluation Approach	6-1
6.4.1	Program Design	6-2
6.4.2	Program Delivery.....	6-2
6.4.3	Marketing Strategy.....	6-3
6.4.4	Participant Satisfaction	6-3
6.4.5	Status Reports	6-3
6.5	Suggested EM&V Contractors	6-3
SECTION 7	QUALIFICATIONS	7-1
7.1	Primary Implementer	7-1
7.2	Subcontractors.....	7-3
7.2.1	WHAT’S WORKING.....	7-3
7.3	Resumes or Description of Experience.....	7-4
SECTION 8	BUDGET	8-1
8.1	Budget Summary	8-1

1.1 PROGRAM CONCEPT

The Green Building Education and Technical Assistance (GBETA) Program is an information program providing training, design assistance, technical support, and marketplace education and coordination for public and private sector green building projects. The program would promote long-term sustainable energy use and peak demand savings by supplementing existing municipal green building program implementation efforts in the San Francisco Bay Area by “connecting the dots” between the supply and demand players that make up a working marketplace that understands, values, and implements green building practices. The GBETA Program would include both a residential and nonresidential component for new construction and major renovation building projects in the Pacific Gas and Electric (PG&E) Company service area. The focus on nonresidential facilities would include civic buildings, such as libraries, fire stations, courthouses, and community centers, as well as targeted private sector commercial facilities. The residential focus would target single-family home developments as well as multi-family and affordable housing projects.

1.2 PROGRAM RATIONALE

The Green Building Education and Technical Assistance (GBETA) Program will:

- Attract more attention, generate more participation, and thus deliver more energy efficiency than an energy-efficiency-only program by appealing to the full spectrum of building owner and occupant concerns that green building encompasses
- Address market barriers by lowering the participant’s first costs, minimizing information or search costs, and reducing the real or perceived risks associated with implementing green building and energy-efficiency practices
- Leverage the momentum created by municipal green building standards and initiatives through existing relationships.

1.2.1 Green Building Sells Energy Efficiency

Green Building is the concept of designing, constructing and operating buildings that are energy-efficient, water-efficient, use building materials in a resource-efficient manner, have healthy indoor air quality, are durable and low maintenance, and are integrated into the realities of the local site. Green designers take a comprehensive and holistic view of the design process by creating an integrated team of the key professionals (including the architect, engineers, contractors, client and maintenance professionals) involved in the design, construction, and eventual operations and maintenance of the building. This team works together from the very beginning of the process to set goals and to integrate the designs, systems, and materials of the project to create a final product that works as a well-planned “whole building” system. This

approach contrasts with the typical linear building process that designs and assembles a collection of individual parts without the advantage of the various professionals coordinating to ensure that their interrelated ideas and systems actually function in harmony.

By thoughtfully using integrated design, one sees the value in considering all aspects of the building. Green Building's holistic view of building design and construction promotes the integration of energy-efficiency design strategies through integrating a portfolio of energy-efficiency strategies through daylighting, the building envelope, HVAC and lighting systems, building commissioning, and measurement and verification. Certainly, energy efficiency is the cornerstone for any green building, but other aspects functioning symbiotically with the energy efficiency of a green building are also significant. These aspects include water efficiency, indoor air quality, materials and systems, and the site.

These "other" green building aspects have the power to significantly increase the interest in energy efficiency, because the whole "green package" is more attractive to an owner and occupant than energy efficiency alone. Energy efficiency alone has been promoted for the past 30 years in the U.S., and although obviously attractive on economic terms, market research and field experience show that it still does not hold people's building investment interests and have the needed market demand pull for widespread adoption in new construction. What is becoming more evident, though, is that when people are educated about the benefits of green building, they are willing to pay more for the drivers which are core Green Building principles, such as waste reduction, improved indoor air quality, improved natural daylighting, higher productivity and sense of well-being, lower maintenance costs, lower incidence of mold or building defect-related building issues, and increased durability. Thus, 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.

1.2.2 Addressing Market Supply and Demand-Side Barriers

Green building efforts have made substantial progress in the past few years, as is evident by the fact that the four largest cities in California (Los Angeles, San Diego, San Jose, and San Francisco), as well as many other cities and counties across the state and nation, have adopted green building standards that also promote long-term energy efficiency. Though most of these cities and counties are only requiring municipal projects to incorporate green building and energy-efficient measures, they are strongly encouraging the same in the private sector via education and incentive programs and are considering when it would be feasible to require such measures for the private sector as well.

Unfortunately, municipalities that have adopted or are considering adopting green building standards often lack the capital, expertise, and time necessary to assess and act on green building opportunities comprehensively and confidently or to provide incentives for the private sector. Current budget shortfalls throughout the state, a lagging economy, a focus on minimizing up-front capital costs in construction projects, and lack of experience with the green building implementation process create significant barriers to green building implementation for municipal and private sector projects alike.

The GBETA Program addresses these barriers by lowering the participant's first costs, minimizing information or search costs, and reducing the real or perceived risks associated with implementing green building and energy-efficiency practices. The GBETA Program is an educational and technical support program designed to effectively mitigate these barriers. Specifically, the GBETA Program addresses the following key market supply and demand-side barriers:

- **Higher Start-up Expenses** (supply and demand barrier). Standard practice new construction projects based on the linear design process are typically pressured to minimize real or perceived first costs to ensure they are delivered “on time and on budget.” As a result, budgetary pressures exist to minimize design-related first costs. The integrated design approach necessary to successfully implement green building projects requires more collaboration up front and often requires green building consultants that are experienced with the emerging field. Though significant construction and operating costs can be saved by involving experienced green building professionals early in the design process, strained first-cost budgets often preclude this early design integration.

The GBETA Program will provide green building design-related technical assistance free of charge to municipal and private sector program partners and will assist with design team integration.

- **Lack of Consumer Information or Search Costs** (demand barrier). Our experience has shown that building owners have relatively low awareness of the existence and nature of energy-efficient and green features in a building. They lack the information and the experience to recognize those features and to effectively evaluate their potential costs and benefits. Long before considering energy efficiency, buyers search for other building features such as size, location, lot, and architectural design. Buyers are familiar with these features; it is what typical sources of building information offer them and have essentially “trained” the buyer to look for. The costs of identifying green building products or services or of learning about energy-efficient practices, including the value of time spent finding out about or locating a product or service and/or hiring someone else to do so, is a barrier similar to higher start-up expenses; there is a lack of time and/or money to identify green building and energy-saving opportunities.

The GBETA Program is specifically designed to reduce the information and search costs for building professionals and building owners and occupants. The program will provide cost-effective energy-efficiency and green building educational programs and materials as well as specific technical consultation to participants in the program. Information on resources, rebates, and any relevant local, state, or federal programs will also be provided. The program is also designed to transform the information marketplace to offer that information by teaching buyers the value of green building and to request it of their professionals. The educated buyer will be the transforming lever.

- **Lack of Experience** (supply and demand barrier). The building industry is very slow to take on new ideas and, as such, experience with green building is still in the early stages. Many professionals are very apt to try to evade the expectation to improve their education and experience by claiming that green building is unproven, costly, and not yet a market

demand. It is often considered risky and of course, the first time that a professional personally or on a corporate basis takes on a new idea, green or not, there is risk. Yet, leaders in the industry know that green building is a significant market reality and they are rapidly embracing it. As they practice their implementation of green building, they find their experience and their business partners' experience grow with each project. Through successive efforts, they continue to build better buildings and learn that green building has many benefits for themselves and for their clients. As more builders progress, the marketplace also begins to offer many more products and services that fit the green building process.

The GBETA Program will provide targeted information through outreach, education, and project consultations with experienced green building professionals that will increase the awareness of cost-effective measures and implementation strategies.

- **Regulatory barriers** (government barrier). It is often the case that green building is perceived to conflict with building codes and regulations. Based on the experiences of green building professionals, it is reasonable to state that most of these conflicts exist because of a lack of experience or education in green building practices. This problem is exacerbated due to traditional, sometimes adversarial, relationships between regulators and practitioners and the already problematic building submittal and approval process.

The GBETA Program will provide targeted information through training and project consultations with both developers and the regulating bodies that will increase the awareness of both the practitioners and regulating bodies regarding specific practices or products in question.

- **Opposing incentives** (supply and demand barrier). The benefits of energy efficiency accrue to the building owners and occupants, yet building professionals are the ones making the decisions on this issue. Building professionals must take time and use specific knowledge to build an efficient building, while at the same time, they typically feel their customers are not very interested in, nor willing to pay for, that work. As a result, building professionals often take little responsibility beyond their minimum legal, contractual, and business relationship obligations for their designs and construction practices that result in benefits that only accrue to the occupant or owner, for example, reduced utility and maintenance costs, improved indoor air quality and site issues.

The GBETA Program will provide targeted information through training and project consultations that will increase the awareness of both the professionals and the building occupants regarding the benefits of green building and energy efficient practices or products.

- **Local Government barriers.** Local governments (cities, counties, and special districts) have abilities and experience working closely with the building industry and they have experience facilitating educational programs for better building practices in areas such as energy conservation, water conservation, recycling, lead paint, etc. Yet in these times of budget cuts and economic slowdown, local governments have limited to no ability to handle the extra work or funding that any new program would require.

The GBETA Program will augment existing municipal efforts by providing much needed education and training opportunities for municipal staff and the design/construction community at no expense to the municipal partner. Trainings can be targeted to the individual needs of the jurisdiction. In addition, technical assistance services for municipal green building projects that are leading by example will reduce the burden on already strained municipal capital budgets, while consulting services for exemplary private sector projects can be leveraged as incentives to follow suit. In addition to training, this program will work to educate the marketplace to create a stronger, more focused demand for green building. It will also work with all of the players in the marketplace to create interaction between designers, builders, tradespeople, suppliers, and buyers to create an active market web that is able to connect the transactions that make a green building marketplace live on its own with less government support.

1.2.3 Leveraging Green Building Momentum

The proposed effort seeks to improve energy efficiency and incorporate sustainable design strategies in new buildings and renovation projects by leveraging the momentum created by the recently adopted green building standards of the City and County of San Francisco, the counties of Alameda and San Mateo, and the cities of San Jose, Berkeley and Pleasanton, as well as the emerging programs in Contra Costa and Sonoma Counties. It would also leverage the growth in green building knowledge and implementation by a number of new green-building-focused nonprofits and of course, most importantly, in the buying habits of commercial and residential building customers.

Long-term energy savings will only be achieved if green building programs change the normal behavior of project managers, architects, engineers, contractors, plan check staff, building inspectors, tradespeople, suppliers, real estate professionals, buyers, and others who have an impact on the construction industry. Through the proposed GBETA Program, we will build on the strategies and successes of our team's existing municipal, commercial, and residential efforts in Alameda County to provide education and technical assistance for these key market actors in other jurisdictions so they will be able to complete their next projects with significantly less assistance.

This program will provide the necessary technical resources for interested local governments and private sector players to expand their existing green building initiatives or implement new initiatives. It will also provide educational and technical resources to exemplary private sector partners that wish to significantly exceed Title 24 requirements and green their projects. We also seek to add strength to educational efforts by providing funds for hard costs for necessary educational resources such as educational displays, brochures, guidebooks, tours, etc.

1.2.4 Conclusion

There are significant barriers to gaining reliable information on implementing green building and sustainable energy measures that are cost effective for a particular customer or facility. Customers need specific information relevant to their project. They also need to be educated on

the fact that they have many options and what the implications of those options are. The educational component of the GBETA Program will deliver this information through presentations, consultations, training, and educational materials. GBETA Program staff has provided green building and energy-related education to thousands of individuals and organizations and is well qualified for the proposed tasks.

Individualized technical assistance can take customers from the information gathering stage to implementation. The technical assistance component of the GBETA Program will deliver maximum effect by early involvement and proven processes. Early project goal-setting will increase project discipline and provide better integration for the design team. Intervention at the appropriate time in a project's development, typically before the schematic design is completed, will ensure the ability to influence major design decisions that effect energy efficiency such as building orientation, height and shell design. Smooth integration into a project's existing time schedules, combined with our specialized expertise in offering design assistance services, will ensure that technical assistance provided under the Program will be optimized.

1.3 PROGRAM OBJECTIVES

The primary focus of the GBETA Program will be to promote the implementation of cost-effective green building and energy-efficiency measures in new construction and renovation projects, while creating a broad awareness of the benefits of green building and energy-efficient design.

The GBETA Program has four objectives:

1. **Augment existing municipal efforts to promote and implement Green Building practices.** Leverage relationships with City and County Governments in the San Francisco Bay Area to create alliances with specific jurisdictions and agencies in the nine-county area to assist in conducting critical outreach, training, and technical assistance for municipal, commercial, and residential projects. Expand both the local supply of and demand for green building services and products.
2. **Transfer green building technical expertise and resources to local governments and the local building industry.** Develop and deliver green building education, services, and resources to local governments, building industry professionals, housing developers, and the community. Assist governments in incorporating green design into their own institutional projects, which has value for its intrinsic efficiencies and provides a positive example to stimulate similar practices among the private building industry. Mentor municipal staff to build in-house capacity.
3. **Strengthen the Bay Area green building marketplace.** Teach the supply and the demand sides of the marketplace about the value in buying and selling green building products and services. Strong efforts in “connecting the dots” between buyers and sellers will create an active marketplace that is able to create more buildings that are energy-efficient and green with less government prodding.

4. **Overcome existing shortcomings in the standard design/construction delivery model.** Foster the integrated design approach and up front design collaboration necessary to successfully implement green building projects and comprehensive energy efficient design. Provide technical assistance to bridge the first cost “budget gap” for green building design and construction related consulting services.
5. **Improve the effectiveness of existing programs.** Coordinate with existing new construction programs, such as “Savings by Design” and ENERGY STAR to maximize participation. Provide cost effective strategies for implementing the U.S. Green Building Council’s *LEED Green Building Rating System* and the Alameda County Waste Management Authority’s *Green Points Program*.

2.1 PROGRAM IMPLEMENTATION

The Green Building Education and Technical Assistance (GBETA) Program for 2004-2005 will be a program of education and technical assistance aimed at municipalities and the private building sector. Our efforts will focus on developing a knowledge base of green building and implementing consistent evaluation methods across the nine-county San Francisco Bay Area PG&E service territory. Our program will involve the following actions:

- Technical training for builders, architects, contractors, and other building industry professionals
- Public outreach and education regarding the benefits of building and buying “Green”
- Training for local government staff on technical issues and integrating green building practices into the design and construction management process
- Project-specific technical assistance for building owners, designers, builders, and contractors
- Technical support to local governments wishing to “green” their capital improvement programs and/or their policies and procedures.

2.1.1 Training

Commercial and Multi-Family

A training program for commercial and multi-family building professionals will consist of three primary components:

1. Green Building 101: Greening the Way We Build: An Overview
2. Green Building 201: Integrating Green Building into the Design and Construction Process
3. Green Building 301: Managing the Costs of Green Building.

We will offer building professionals a “Green Building 101” seminar that will introduce participants to the concept of Green Building. Topics will include what green building is, the value of Green Building to building owners and the design and construction industry, its current relevance to the marketplace (including the use of established rating systems), and an overview of green building measures. Available program resources will also be discussed.

For those building professionals that have completed the Green Building 101 seminar or feel they already understand the basics, we will offer a seminar on integrating green building into the design and construction process. This will be a more applied session that focuses on green

building application strategies and implementation issues. For example, the session could provide targeted training that addresses ways to maximize credits earned in the LEED Green Building Rating System's Energy and Atmosphere category, specifically addressing strategies for optimizing energy performance, and implementing appropriate commissioning and measurement and verification practices.

The final component of the building professional training will focus on strategies to manage the costs of a green building project. From choosing materials and products intelligently to appropriate project management techniques, this session will provide tips for minimizing first costs and controlling overall project costs.

Single-Family Residential

A training program for single-family building professionals will consist of three primary components:

1. Green Building 101: Greening the Way We Build: An Overview
2. Green Building 201: Integrating Green Building into the Design and Construction Process
3. Green Building 301: Special Topics.

We will offer policy makers and staff, building professionals, and the general public a "Green Building 101" seminar that will introduce participants to the concept of green building. Topics will include what green building is, the value of green building to homeowners and the design and construction industry, its current relevance to the marketplace (including the use of established rating systems), and an overview of green building measures. Available program resources will also be discussed. Our program will also spend time working on "training the trainer" for this training, so that eventually, local professionals could provide this presentation rather than relying on our program.

For those government staff (building inspectors, plan reviewers, or green building-related educational staff) or building professionals that have completed the Green Building 101 seminar or feel they already understand the basics, we will offer a seminar on integrating green building into the design and construction process. This will be a more applied session that focuses on green building application strategies and implementation issues. The training will focus on implementing the Alameda County Waste Management Authority's Green Points Program and guidelines and checklist. This checklist is being used by a number of jurisdictions already in the area and provides a format to have consistent program design throughout the Bay Area, thereby influencing building to use it more readily than if there were different systems in every jurisdiction.

The final component of the building professional training will focus on special topics such as indoor air quality, practices in implementing the green building process, green building marketing, etc. Topics will also be created due to requests from clients.

This tri-level approach to training provides flexibility to address all experience levels of potential public and private sector participants. It allows someone with little or no experience with green building to participate in a series of courses that will demystify the green building process and provide the resources necessary to embark on a successful green building project. It also allows the more experienced building professional to step in wherever he/she feels it's most appropriate for his/her skill level and project role.

In addition to the training component, we will provide educational services to municipal partners. Many of our potential municipal partners have conceptual plans or programs encouraging green building practices. Our efforts will be to further the implementation of each jurisdiction's existing plans and tailor education and training to meet their needs. Likely offerings will include "Green Building 101" seminars as well as customized trainings for plan checkers, building inspectors, and other relevant municipal staff on how to incorporate energy efficiency and green building practices into the design and construction management process and the local inspection infrastructure.

2.1.2 Technical Assistance

Through project mentors, the GBETA Program will provide green building design-related technical assistance to municipal and private sector program partners to bridge the first-cost "budget gap" for green building design and construction related consulting services and assist with design team integration. The Program will target project-specific design assistance on nonresidential new construction and major renovation projects. Building types will include commercial, municipal, and multi-family residential (four stories or taller). Design services will also be available for large-scale single-family home developments on a more limited level.

In order to determine appropriate project candidates, Program staff will gather relevant project information from potential project partners. This "pre-screen" information will include, but not be limited to, the following:

- Building type and project category
- Size of the project
- Phase/timing of the project
- Whether or not the project has been funded and to what level.

Once the Program staff determines that the potential project partner meets the established minimum criteria in the above categories, the level of interest and/or commitment to incorporating green will be assessed.

For projects that are interested in "going green" to some degree (e.g., incorporating incremental green measures such as energy-efficient lighting, recycled content materials, etc.), or are not sure of their level of commitment, but are willing to sign a letter of intent to incorporate as many green measures as is practicable (including exceeding Title 24 requirements by at least 10

percent), a base level of technical assistance services will be provided. The base level technical services package will include:

1. **Project intake meeting:** gather additional relevant project information and provide some education.
2. **Project evaluation:** review any existing project documentation to assess the potential for greening the project, using LEED or Green Points as a design guide.
3. **Recommendations report:** recommend project-appropriate green building strategies based on the LEED or Green Points green building categories, provide information regarding green building products, and provide resources regarding any relevant rebates, incentives and programs.
4. **Follow-up communication:** available via phone or e-mail for a limited period to clarify questions or address concerns regarding the recommendations report.

Projects that are more committed to incorporating a broad range of green measures across energy and water efficiency, building siting, material selection, and indoor air quality will be eligible for additional technical assistance. Those project partners that will sign a letter of intent to achieve at least a LEED-certified rating through the U.S. Green Building Council and exceed Title 24 by at least 15 percent will be eligible for a more comprehensive set of technical assistance services.

This comprehensive technical services package will include:

1. All of the technical services list above in the base level technical services package.
2. **Comprehensive plan and specification review:** review of plans and specifications and detailed comments and recommendations for incorporating green at the plan and specification level.
3. **Design charrette:** establishment of performance goals, collaboratively developed strategies to meet energy-efficiency performance goals, address barriers and concerns.
4. **Project implementation mentoring:** clarifying comments for plan and specification review, review of contracting issues, LEED credit interpretation and process advice.

Throughout the process, whether providing the base level or more comprehensive technical assistance package, the GBETA Program project consultants will act as mentors to project partners, providing expert evaluation, cost effective recommendations, and a roadmap for green building implementation. The Program provides design assistance in a way that has a lasting impact by transferring practical knowledge to the entire project team.

2.1.3 General Education and Support

We will conduct a number of public presentations (abbreviated or full Green Building 101 trainings) throughout the Bay Area. We will enlist the support of local governments and nonprofits to allow our program staff to make presentations in a multitude of venues, including city boards and commissions, regular meetings of nonprofit organizations, community and corporate fairs, home shows, trade shows, etc. This wide net of information distribution will

provide strong promotion and a groundswell of increased interest in green building consumers, directing them to the appropriate resources that can fulfill their needs.

Where necessary, we will assist municipal partners develop and/or implement sustainable energy and green building policies and programs that promote long-term sustainable energy and resource use and peak demand reductions. We will transfer green building technical expertise and resources to facilitate organizational capacity building. Technical support services could include, but not be limited to:

1. Review of technical documents
2. Recommendations for implementation
3. Consultations on curriculum development for training programs
4. Public presentations on green building and sustainable energy use.

In addition to tailored, agency-specific technical support services, we will reserve program budget for more general educational activities. Anticipated educational channels include training seminars and workshops, meeting presentations, educational displays, and electronic, and print media channels.

2.1.4 Coordination with Other Programs

We will coordinate with existing statewide incentive programs by channeling design assistance partners to programs that promote sustainable energy use and peak demand reduction, such as Savings by Design, the CPUC Self-Generation Incentive Program, and the CEC's Emerging Renewables Program. For our residential customers, we will direct customers to take advantage of PG&E energy-efficiency rebates as well as the California ENERGY STAR program.

2.2 MARKETING PLAN

Our outreach efforts will target the following groups:

- Local governments
- Architecture and design community
- Builders and developers
- Suppliers of construction materials and equipment.

2.2.1 Local Government

We will develop the involvement of Bay Area governments by contacting them via letter and personal follow up as well as our typical practice of government networking via organizations such as the League of California Cities and the Association of Bay Area Governments (ABAG). Initial interest may be followed with a meeting and presentation to the client.

Program staff will work with various city governments to leverage their access in marketing the program to their internal facilities as well as targeted commercial and residential developers in their communities. The cities can provide a valuable liaison between the building community and the program. KEMA-XENERGY and the cities will co-brand the program and get the message out through program flyers, Internet access, and presentations at city-sponsored community meetings.

2.2.2 Architects

We will develop strategic partnerships with industry groups such as the local chapters of the American Institute of Architects (AIA) and the Northern California and Redwood Empire Chapters of the U.S. Green Building Council. We will offer a presentation as well as content for a newsletter piece to promote the program.

2.2.3 Builders and Developers

We will develop strategic partnerships with industry groups such as the Building Industry Association, National Association of Home Builders, the National Association of the Remodeling Industry, and North Coast Builders Exchange as a strategy to generate leads for clients. We will also use our existing relationships with builders that we have developed over the past 5 years in the Bay Area. In general, our experience has shown that innovative builders are the early market adopters of green building practices, just as they are with any other new idea in the marketplace. We will search out these innovative builders and target them with personal marketing.

2.2.4 Product and Service Suppliers

We will continue to improve our existing strategic partnerships with industry groups such as the Bay Area Green Building Supplier's Council to reach out to suppliers.

2.2.5 Homeowners and the General Public

We will use our partnerships with local governments and all other networking opportunities to find a wide variety of venues to reach out to the general public and deliver our basic Green Building 101 presentation.

2.2.6 Marketing/Outreach Materials

Outreach packages will be developed for both residential and nonresidential customers and will be distributed through targeted channels. A total of 300 packets are budgeted at \$10 per packet.

2.3 CUSTOMER ENROLLMENT

Technical assistance projects will either be recruited for enrollment via workshop participants, referrals from local government partners, or outreach solicitations. In addition, potential project customers may call a daytime phone number to confirm eligibility and request that a proposal be

developed. The potential project partner will be provided with information on the program, benefits, and requirements for participation at the first point of communication.

If the potential project partner expresses interest, relevant project information will be gathered, including type, size, and phase of the project. The potential partner commits to being a program participant once they sign a participation agreement.

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.

2.4 MATERIALS

This program will not procure, deliver, or install equipment for program participants. Rather, it will rely on education and outreach to achieve program objectives.

2.5 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.

2.6 STAFF AND SUBCONTRACTOR RESPONSIBILITIES

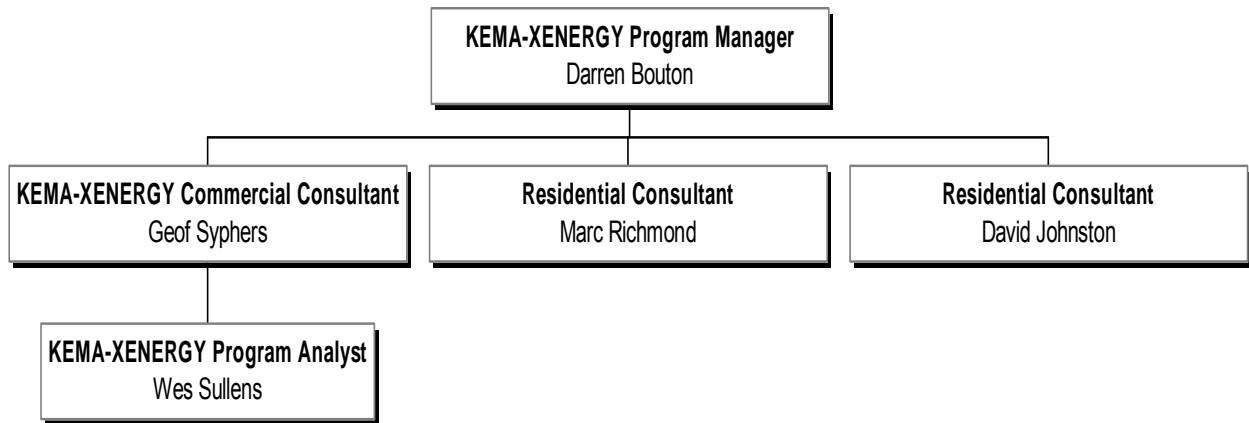
The KEMA-XENERGY program manager will have overall responsibility for all GBETA activities in the San Francisco Bay Area PG&E service territory. He will have primary responsibility of ensuring effective communication between the KEMA-XENERGY team and the PG&E customer. He will also have a major role in marketing the program and facilitating training and educational events.

The KEMA-XENERGY program manager will have overall responsibility for managing the KEMA-XENERGY staff and subcontractors. KEMA-XENERGY will develop and deliver commercial training courses, general educational activities, and provide commercial technical assistance services and design support. Subcontractors will develop and deliver residential training courses, general educational activities, and provide residential technical assistance services and design support. All activities will be coordinated using a centralized function in the KEMA-XENERGY Oakland office.

The role of the program analyst will be to ensure that all project pre-screens and initial project intake meetings are conducted in a timely fashion and that various agreements, such as the participation agreement, are signed when required for projects initiated by Program staff. The program analyst will also have a key role in coordinating with the various projects to ensure their individual project needs are being met.

The project staffing structure for the GBETA Program is shown in Figure 2-1.

**Figure 2-1
GBETA Program Staffing Plan**



2.7 WORK PLAN AND TIMELINE FOR PROGRAM IMPLEMENTATION

Major project activities will occur during the time periods shown in Table 2-1.

Table 2-1
San Francisco Bay Area GBETA Program
Performance Targets and Deliverables

San Francisco Bay Area Green Building Education and Technical Assistance (GBETA) Performance Targets and Deliverables								
Program Activity	2004				2005			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Program Launch								
Sign Contract and Coordinate Program Activities with Contract Administrator	•							
Outreach Announcing Program		•						
Program Implementation								
Recruit Municipal Partners	•							
Recruit Industry Partners	•							
Establish Minimum Criteria and Guidelines for Technical Assistance Services	•							
Develop Letter of Intent	•							
Develop Building Professional Training		•						
Develop Municipal Staff Training		•						
Identify Potential Technical Assistance Projects		•	•	•	•			
Provide Technical Assistance Services			•	•	•	•	•	
Conduct Building Professional Training			•	•	•	•	•	•
Conduct Municipal Staff Training			•	•	•	•	•	•
Provide General Educational Services and Support			•	•	•	•	•	•

Each quarterly report will contain a written summary of accomplishments and issues, expenditures by type, and the following statistics:

- Total number of projects contacted
- Number and percentage of participating projects
- Number and percentage of projects that have rejected the program and why
- Disposition of project team members toward technical assistance process
- Total number of training/educational events delivered
- Total number of participants attending training/educational events

Outreach accomplishment statistics and costs will also be provided by each specific outreach method.

3.1 CUSTOMER DESCRIPTION

3.1.1 *Technical Project Assistance*

The target market comprises both residential and nonresidential customers for new construction and major renovation building projects in the San Francisco Bay Area, Pacific Gas and Electric Company service area.

3.1.2 *Education and Training*

The target market for education and training comprises Bay Area cities, counties, and special districts as well as local nonprofits. Targeted participants include the general public as well as architects, builders, contractors, owners, and municipal staff (including project managers, plan checkers, and building inspectors).

3.2 CUSTOMER ELIGIBILITY

All Bay Area cities and counties are eligible. There is no limitation on the size of the city or county.

Projects in the nine-county Bay Area will be eligible for the project-specific consulting services. The focus on nonresidential facilities would include civic buildings, such as libraries, fire stations, courthouses and community centers, as well as targeted private sector commercial facilities. All inhabited civic buildings that are fairly common in type will be allowed so long as we determine that the timing of the project (typically in schematic design phase or earlier) allows significant changes to be made. We anticipate that the range in sizes will be from about 5,000 square feet to 300,000 square feet, with the most common sizes around 10,000 to 40,000 square feet. The residential focus would target multi-family and affordable housing projects over four stories as well as new construction single-family home developments.

All presentations and trainings will be held in the nine-county Bay Area. Professionals and residents who live and work within this region may attend free of charge.

3.3 CUSTOMER COMPLAINT RESOLUTION

KEMA-XENERGY's approach to dispute resolution and consumer protection is outlined in this section. There are several methods through which disputes between program staff and end-user customers will be resolved. First, when problems arise, it is the job of the KEMA-XENERGY program manager to use all means at their disposal to resolve the issues at hand. If they are not successful, the issue is brought to the attention of the principal in charge for their input and

problem resolution skills. If necessary and as a last resort, KEMA-XENERGY's contracts specialists will be enlisted, depending on the nature of the problem.

We should point out that never in our long history of delivering programs and implementing consulting engagements has there been a customer complaint that we did not satisfactorily resolve. In fact, KEMA-XENERGY has rarely had to go beyond the project manager and principal in charge to resolve conflicts. We value our long-standing working relationship with various players in the industry, and look forward to our continued mutual success on future projects. Integrity remains to be one of the cornerstones of the work we do, and it is a key value that we bring to any situation in which problems arise.

In addition, KEMA-XENERGY will inform customers of the Commission's informal and formal complaint processes, which are available through the Consumer Services Division, as another channel through which customers may file a complaint.

3.4 GEOGRAPHIC AREA

Our work will be limited to the nine-county San Francisco Bay Area (San Francisco, San Mateo, Santa Clara, Alameda, Contra Costa, Solano, Napa, Marin, and Sonoma Counties). Expected target areas include:

- Contra Costa County
- Santa Clara County
- San Mateo County
- Alameda County
- Sonoma County.

Our program resources will be allocated to where we feel their use will provide the best market transformation levers for the area and for longevity of energy savings.

4

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.

4.1 ENERGY SAVINGS ASSUMPTIONS

This program will rely on education and outreach to achieve program objectives. It will not quantify expected energy impacts.

4.2 DEVIATIONS IN STANDARD COST-EFFECTIVENESS VALUES

This program will rely on education and outreach to achieve program objectives. It will not quantify expected energy impacts.

4.3 REBATE AMOUNTS

This program does not involve rebates.

4.4 ACTIVITIES DESCRIPTIONS

- Fifteen nonresidential workshops—building professionals (architects, designers, engineers, owners, builders, contractors, etc.)
- Nine nonresidential workshops—municipal staff (project managers, plan checkers, building inspectors)
- Ten nonresidential presentations to municipalities, politicians, etc.
- Twenty base-level technical assistance projects—nonresidential
- Five comprehensive level technical assistance projects - non-residential projects
- Ninety-six residential workshops/presentations—GB 101 for building professionals (architects, designers, engineers, owners, builders, contractors, etc.)
- Twenty residential workshops/presentations—GB 201 for building professionals (architects, designers, engineers, owners, builders, contractors, etc.)
- Nine residential workshops/presentations—Special topics for building professionals (architects, designers, engineers, owners, builders, contractors, etc.)
- Three residential case studies
- Fifteen residential presentations to municipalities, politicians, etc.
- Three green home tours
- General educational activities (anticipated educational channels include training seminars, workshops, and meeting presentations).

5.1 MUNICIPAL SUPPORT TARGETS

The Program will provide tailored technical support services to a minimum of five cities and/or counties.

5.2 TRAINING TARGETS

The Program will provide training workshops for building industry professionals that average at least thirty participants per workshop.

5.3 TECHNICAL ASSISTANCE TARGETS

The Program will provide technical assistance services to at least five projects that intend to exceed Title 24 by 20 percent or more and register with the U.S. Green Building Council with intent to achieve at least a LEED Certified rating. The Program will provide technical assistance services to 20 projects that intend to exceed Title 24 by 10 percent or more.

6

PROGRAM EVALUATION, MEASUREMENT AND VERIFICATION (EM&V)

6.1 EM&V OBJECTIVES

Evaluation of programs is critical to ensuring accomplishments and improving programs over time. KEMA-XENERGY has been a leader in energy program evaluation for over two decades. Accordingly, we are well equipped to design and implement a program evaluation that will provide reliable conclusions as to the success of the program. The EM&V plan will provide additional detail on our proposed approach. Table 6-1 outlines how our EM&V approach will address the CPUC objectives.

**Table 6-1
CPUC Objectives and the GBETA Program Evaluation**

Objectives	Evaluation Approach
Providing up-front market assessments and baseline analysis, especially for new programs	A comprehensive baseline market assessment is beyond the scope of this evaluation. However, an analysis of the penetration of Green Building awareness will be conducted
Providing ongoing feedback, and corrective and constructive guidance regarding the implementation of programs	The evaluation team will be in close contact with KEMA-XENERGY and will provide ongoing feedback and recommendations as necessary through the evaluation.
Measuring indicators of the effectiveness of specific programs, including testing of the assumptions that underlie the program theory and approach	The process evaluation explicitly develops effectiveness indicators as the primary way to assess program efficiency. The final report will document program success toward achieving these goals, i.e. reducing market barriers.
Assessing the overall levels of performance and success of programs	Through interviews with program participants we will assess and comment on the overall level of performance and success of the program.
Helping to assess whether there is a continuing need for the program	The process evaluation will assess program performance, market penetration, and the continuing need for the program.

6.2 ENERGY EFFICIENCY MEASURE INFORMATION

Not applicable for the GBETA Program.

6.3 MEASUREMENT AND VERIFICATION APPROACH

Not applicable for the GBETA Program.

6.4 EVALUATION APPROACH

Since, the GBETA program is an information-based program, the EM&V for the program will focus on evaluating the effectiveness of the program in achieving its major objectives:

1. Augment existing municipal efforts to promote and implement Green Building practices
2. Transfer green building technical expertise and resources to local governments and the local building industry
3. Strengthen the Bay Area green building marketplace
4. Overcome existing shortcomings in the standard design/construction delivery model
5. Improve the effectiveness of existing programs.

The completed program process evaluation will provide a retrospective picture of the success of the program process and will assess customer satisfaction. It will examine how the program is operating and assess whether adjustments need to be made to enhance program performance. Obstacles to the success of the program will be identified and remedies proposed to address them. The feedback provided by the process evaluation will be incorporated where feasible and every effort will be made to refine the program based on the information gathered.

6.4.1 Program Design

As part of the process evaluation, the EM&V contractor will examine the GBETA Program design. The scope of the examination of the program design will include a review of objectives, program theory, identified market barriers, hypothesized “cause and effect,” program activities, and implementation plan. All Program documents will be reviewed, including the implementation plan, tracking database, and the budget.

The document review will be supplemented with interviews conducted with the program managers and implementers. The interviews will serve to confirm the EM&V contractor’s understanding of the program design and theory and identify appropriate performance metrics (e.g., process metrics, activity and participation data to be tracked and reported by implementers and participants) for each program. A major component of this evaluation will be to assess the effectiveness of the program at addressing the targeted market barriers.

6.4.2 Program Delivery

The evaluation will report on the following program indicators:

- Number of nonresidential workshops targeted to building professionals
- Number of nonresidential workshops targeted to municipal staff
- Number of nonresidential presentations to municipalities, politicians, etc.
- Number of base-level technical assistance projects—nonresidential
- Number of comprehensive level technical assistance projects—nonresidential
- Number of residential workshops/presentations—GB 101 for building professionals

SECTION 6 PROGRAM EVALUATION, MEASUREMENT AND VERIFICATION (EM&V)

- Number of residential workshops/presentations—GB 201 for building professionals
- Number of residential workshops/presentations—special topics for building professionals
- Number of residential case studies
- Number of residential presentations to municipalities, politicians, etc.
- Number of green home tours
- Summary of other educational activities not addressed above (training seminars, workshops, and meeting presentations).

6.4.3 Marketing Strategy

The EM&V contractor will review all of the marketing material, outreach activities, educational materials developed for the program. In addition, the EM&V contractor will evaluate the targeting strategy for the program services. The participant satisfaction interviews discussed in the next subsection will also include a segment addressing the effectiveness of the marketing materials provided.

6.4.4 Participant Satisfaction

Participant feedback will be obtained primarily through a telephone participant satisfaction survey that will focus on general satisfaction with the education, training, and services received. The process evaluators will review the program operations from the perspective of all of the types of participants, including customers, local governments and contractors. Key issues include the effectiveness of program management, ability to address market barriers, and behavioral changes made as a result of program participation.

6.4.5 Status Reports

The EM&V contractor will specify the scope and timing of the EM&V activities in an EM&V plan that will be submitted to the CPUC for approval. At a minimum quarterly progress reports, a draft EM&V report, and a final EM&V report will be submitted. Recommendations to improve the program delivery will be provided as developed in the quarterly progress reports. This will provide for ongoing and timely feedback to program implementer and give them the opportunity to incorporate recommended changes mid-stream.

6.5 SUGGESTED EM&V CONTRACTORS

KEMA-XENERGY recommends two potential EM&V contractors for consideration for the GBETA Program: Quantec, LLC and Equipoise Consulting. Both firms were on the list of approved EM&V contractors for the 2002-2003 CPUC Programs. Both have experience with evaluations and services targeting green building services.

1. Quantec, LLC

Brian K. Hedman, M.A. - Vice President
Quantec, LLC
6229 SE Milwaukee Avenue
Portland, Oregon 97202
Phone: 503.228.2992
Fax: 503.228.3696
brianh@quantecllc.com

2. Equipoise Consulting

Tim Caulfield
Equipoise Consulting
4309 Whittle Ave.
Oakland, CA 94602
Phone: 510-531-1080
Fax: 510-531-1014
equipoise@covad.net

7.1 PRIMARY IMPLEMENTER

Since 1975, KEMA-XENERGY has been a recognized leader in the development and implementation of creative solutions for energy problems, offering a full range of services to the energy industry. KEMA-XENERGY's services to the energy industry encompass all aspects of planning, implementation, evaluation and market assessment. Since the firm's establishment in 1975, KEMA-XENERGY has developed, implemented, assessed and evaluated hundreds of programs to improve energy efficiency in the residential, commercial, industrial and agricultural sectors. XENERGY was acquired by KEMA Consulting in 2000.

KEMA-XENERGY's 350 employees throughout the United States are experts in energy engineering, energy audits, energy efficiency program administration and implementation, construction management, design/build services, energy metering and statistical analysis, economic analysis, education, training, and energy software development. Related consulting services include market research and assessment, program monitoring and evaluation, technology assessment, energy policy analysis, and information technology to support these specialties.

KEMA-XENERGY is uniquely positioned to design a cost-effective green building education and design assistance program because of our strong energy consulting capabilities, our understanding of construction practices, and our participation in creating the successful existing green building program in Alameda County. KEMA-XENERGY's Green Building practice specializes in city and county staff education, implementation strategies and rating systems including LEED™.

KEMA-XENERGY provides services to a wide range of clients, including the private sector and government partners. We are very familiar with public and private sector building processes and requirements and our green building experience spans a range of building types including commercial, municipal, and residential (single-family, multi-family, and affordable housing) projects. Green building projects have been conducted for the County of Alameda, the cities of Alameda, Berkeley, Dublin, Fremont, Hayward, Livermore, Oakland, Pleasanton, San Jose, San Leandro, and Portland, Oregon.

KEMA-XENERGY has consulted on over 60 Bay Area green building projects that have used LEED™ in some way, and is currently consulting on a Pleasanton fire station, the Oakland Airport Terminal 2 Expansion, and student housing for both UC Berkeley and the new UC Merced campus, to name a few. In addition to our LEED experience, we have developed over a dozen general green building recommendations reports for the Alameda County Waste Management Authority (ACWMA). KEMA-XENERGY has proven to be exceptionally skilful

at managing comprehensive commercial design assistance projects in Alameda County as part of our contracts with ACWMA as its primary education and design assistance consultant for commercial and municipal green building projects. Our objective is to build on the successes of this existing program.

Table 7-1 provides a brief summary of the highlighted project experience.

**Table 7-1
Summary of Selected KEMA-XENERGY Qualifications**

Project Name	Client	Sector	Year	Description
Technical Services				
• Green Building Design Assistance	County of Alameda	Nonresidential Residential	Present	Promote green building practices in design phase of new buildings, provide recommendations reports.
• Green Building Project Management	UC Merced	Nonresidential Residential	Present	Provide green building design assistance, project evaluation, plan and spec review.
• Green Building Design Assistance and Research	City of San Jose	Nonresidential	2001	Research and plan green building strategies for civic buildings.
• Technical Services Contract	PG&E	Nonresidential	Present	Audits, feasibility studies, wastewater treatment benchmarking.
• Technical Assistance Contract	Roseville Electric	Nonresidential	Present	Audits of large nonresidential customers and technical assistance w. Peak Load Program.
• Technical Services Contract	PacifiCorp	Nonresidential	Present	Energy auditing of nonresidential customers.
• RECAP	PG&E, SCE, SDG&E, others	Residential	Present	Turnkey residential mail-in audit services; several hundred thousand processed per year.
• Wastewater Treatment Plant Improvement Program	CPUC	Nonresidential	Present	Audits, feasibility studies, wastewater treatment benchmarking, efficiency training, incentives for local government facilities.
Training and Education				
• Green Building in the Design and Construction Process	Alameda County Waste Management Authority	Nonresidential Residential	Ongoing	Provide overviews on green building to municipal staff and the building industry, costs and benefits of building green, green building applications
• Green Building Project Implementation	County of Alameda General Services Agency	Nonresidential	Present	Provide project implementation training for senior management, project managers, and facilities staff
• Green Building in the Design & Construction Management Process	City of Pleasanton	Nonresidential Residential	Present	Provide green building training for plan checkers and building inspectors

Project Name	Client	Sector	Year	Description
Management Process				
<ul style="list-style-type: none"> Renewable Energy in the Built Environment 	PG&E, Pacific Energy Center	Nonresidential Residential	Ongoing	Provide training on the basics of photovoltaics (PV) and PV for architects for nonresidential and residential applications

7.2 SUBCONTRACTORS

7.2.1 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 U.S. Green Building Council's LEED-Residential Steering Committee.

What's Working is one of the nation's most experienced green building program developers. Starting in 1993 What's Working developed the first private sector green residential certification program through the Boulder, Colorado Home Builders Association. The program was subsequently adopted by the Denver HBA and is the largest private sector program in the country.

What's Working has been the prime contractor for the City of Boulder Green Points Program. What's Working developed the program design, guidelines, training and marketing efforts for new construction and for remodeling which have been in place for 8 years.

What's Working has worked with the Alameda County Waste Management Authority for the last 5 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.

What's Working has also developed and conducted green building training programs for Southern Utilities Environmental Home Program in Atlanta, the Sustainable Buildings Industry Council in Washington, DC, and the green building professional certification program for the National Association of the Remodeling Industry.

What's Working has also worked intensively with production builders. The firm spent 3 years with McStain Enterprises in Boulder to reposition McStain to become the preeminent green

builder on the Front Range of Colorado and subsequently to be awarded the Sustainable Development Achievement Award from Professional Builder Magazine in 2001 as well as several national awards for their green home building.

David Johnston has written the book “Building Green in a Black and White World” published by the National Association of Home Builders Press in 2000. The book goes into extensive detail on how to develop green building packages, how to identify what works in a builder’s market, and how to market their green homes to buyers. He is presently about to publish his second book “Green Remodeling: Changing the World One Room at a Time.”

What’s Working developed the EBN Green Building Catalog teamed with Environmental Building News to market it. It is a resource directory for builders and architects to identify and specify green building products. The catalog identifies over 1,200 green building products and included personal contact with every manufacturer listed. It contains marketing materials (cut sheets) of many products and a company/ product overview of environmental features for each listing. What’s Working has also developed city specific catalogs of a similar nature for Boulder, Denver, Aspen and Los Angeles, California.

Before joining What’s Working, Marc Richmond, staffed and managed the City of Austin’s Green Building Program for the past 6 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. Marc has spent 3 years working with Newmark Homes in Austin, Texas to become the preeminent green builder in the central Texas area and subsequently to be awarded the National Association of Homebuilder’s Silver and Gold Energy Value Housing Awards. During his tenure, Marc 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 technical consultant of the Frontier Associates—Austin Energy Green Building Technical Services Program for the last 1.5 years in the Bay Area.

7.3 RESUMES OR DESCRIPTION OF EXPERIENCE

Darren Bouton, Program Manager, is currently the Manager of Green Building Services for KEMA-XENERGY. He provides consulting services in the areas of green (LEED) project management, eco-charrette facilitation, design assistance, workshops and training, and green building policy/program support. He specializes in training for government staff and design professionals in project management techniques and implementation strategies for ensuring successful green building projects.

Prior to his work with KEMA-XENERGY, Mr. Bouton was the Green Building Coordinator for the City of San José, where he managed the operations of the City’s Green Building Program. His responsibilities included facilitating the implementation of the City’s adopted Green Building Policies and managing the program’s educational component for City departments and

community stakeholders. He is an Accredited Professional in the use of the U.S. Green Building Council's LEED Green Building rating system.

Mr. Bouton teaches courses on solar electricity (photovoltaics) for Pacific Gas & Electric's Pacific Energy Center. In addition, he has taught courses in energy efficiency, energy management, and renewable energy strategies for the Environmental Studies Departments at San José State University and De Anza College.

Mr. Bouton holds an M.S. in Environmental and Energy Policy from the University of Delaware and a B.S. in Economics from Santa Clara University.

Geof Syphers, Commercial Consultant, is Director of Green Building Services for KEMA-XENERGY. He provides new construction and major retrofit design assistance in the areas of siting and landscaping, energy and water efficiency, renewable power, indoor air quality, materials, finishes, and community design. The multi-disciplinary approach requires close coordination with many subcontractors in engineering, architecture, planning and cost estimation. Since launching the Green Building Services Group, Mr. Syphers has directed work on more than 60 green building projects. He also provides ongoing training for government staff and design professionals in project management techniques and implementation strategies for ensuring successful green building projects.

Mr. Syphers' experience is focused in the areas of building construction techniques, systems and controls for improving energy efficiency. He has a strong technical understanding of buildings and building equipment including HVAC systems. His work in this area includes a long list of building types and energy efficiency measures, covering residential, industrial, government facilities, retail, commercial high-rise, schools, prisons, and includes measures from chiller replacements to lighting retrofits and EMS installations. Mr. Syphers has performed numerous DSM evaluation studies and energy-efficient lighting retrofit designs. He has conducted building energy computer simulations and numerous DSM evaluation studies and energy-efficient lighting retrofit designs. He also has special expertise in the area of new building energy performance contracting, having developed a set of standard contracts for this purpose as part of a larger guide he wrote on the subject.

Mr. Syphers holds an M.S. in Energy Engineering from the University of Massachusetts and a B.S. in Physics from Sonoma State University.

Wes Sullens, Program Analyst, provides consulting services on new construction and major renovation projects for public and private sector commercial and residential buildings for KEMA-XENERGY. He specializes in researching building materials, evaluating project documents, and providing green building recommendations. He has also provided research and analysis studies relating to the cost and impact for building to LEED and other green building guidelines.

Mr. Sullens has provided DSM program assistance and has substantial experience in program evaluation, including reviewing and researching applications as an account manager for the SB5X Innovative Peak Load Reduction Grant Program administered by the California Energy Commission, and gathering cost data on residential and commercial energy measures for the 2001 DEER update study (Measure Cost Study). His experience in energy-efficiency market research includes a commercial and industrial lighting market segmentation and baseline study conducted in the Pacific Northwest, where he interviewed architects, distributors and engineers. He also worked on the evaluation of the 2001 Large Nonresidential Standard Performance Contract program, where he interviewed program participants.

Mr. Sullens holds a B.S. in Environmental Studies and Planning from California State University, Sonoma with an emphasis on energy efficiency and alternative energy design.

David Johnston, Residential Consultant, 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 provides consulting services in the areas of green building program design and management, market development, green building marketing, design assistance, workshops and training, and technical resource development. He specializes in market transformation issues and in training design and construction professionals in implementing and marketing green building strategies.

Mr. Johnson has been the principal consultant to many green building programs including the Metro Denver Home Builder's Association Built Green, the City of Boulder Green Points, and the Alameda County Waste Management Authority's Green Points. He has also consulted on green building programs for the City of Scottsdale, Arizona, City of Chicago, City of Aspen Colorado, City of Los Angeles, and the Colorado Office of Energy Conservation. He has also provided technical and marketing consultation and organizational representation for the Environmental Protection Agency, Department of Energy, National Institute for Standards and Technology, Federal Emergency Management Agency, International Energy Agency, Canadian Mortgage and Housing Corporation, U.S. Green Building Council, and Professional Builder magazine.

Mr. Johnston has taught numerous professional seminars and workshops on various green building topics and is presently an adjunct professor at Naropa University in sustainable design and is developing a masters degree program in designing the sustainable built environment.

His book, *Building Green in a Black and White World* was published by the National Association of Home Builders Press in 2000. His second book, *Green Remodeling: Changing the World One Room at a Time* will be published shortly. Johnston was a columnist for the Boulder Daily Camera with a monthly "Building Green" column. He was responsible for two features in Builder Magazine on local builders who build green. Johnston has been published in Builder Magazine, Remodeling Magazine, Professional Builder, Fine Home Building, Home Energy and

other national publications. Johnston is the past Senior Editor of Construct! magazine published by the Cahners buildings group. It was distributed with Professional Builder and Professional Remodeler to about 200,000 readers in 2001.

Mr. Johnston studied with Buckminster Fuller at Southern Illinois University, graduating with a B.S. degree in Environmental Systems Design.

Marc Richmond, Residential Consultant, 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.

Prior to his work with What's Working, Mr. Richmond staffed and managed the Austin Energy Green Building Program. His responsibilities included managing a staff of 12 professionals, a \$1.4 million budget, adopting Green Building Policies and managing the program's educational component for City departments, building professionals and the general public. He was the first chair of the U.S. Green Building Council's LEED-Residential Steering Committee.

Mr. Richmond 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.

8.1 BUDGET SUMMARY

The summary of the budget for the GBETA Program is shown in Table 8-1.

**Table 8-1
GBETA Program Budget Summary**

Item	Administrative Costs	Marketing Costs	Direct Implementation Costs	Evaluation Costs	Total
Labor	\$ 32,919	\$ 31,302	\$ 162,852	\$ 3,000	\$ 230,073
HR Support & Development	\$ 108,623				\$ 108,623
Overhead	\$ 282,235			\$ 5,850	\$ 288,085
Travel	\$ 57,060				\$ 57,060
Materials		\$ 3,000	\$ 185,200	\$ 40,000	\$ 228,200
Misc					
Total	\$480,837	\$34,302	\$348,052	\$48,850	\$912,041

Marketing and outreach costs incorporate staff time to develop and nurture strategic partnerships with local governments, building industry organizations, suppliers and building professionals. It also incorporates time to develop an outreach package and materials costs for printing.

Direct implementation costs include labor for four primary consultants (two nonresidential and two residential) and support staff for the purposes of developing and delivering training content and providing technical assistance services. Direct implementation materials costs are included for the following hard costs:

- Workshop and presentation handouts for over 150 sessions
- Five thousand copies of the Alameda County Waste Management Authority's Residential Green Building Guidelines
- Fifteen hundred copies of the GreenPoints Checklist
- Three thousand copies of Green Building Materials Resource List
- Fifteen hundred home tour brochures
- Other educational tools for local government partners such as point of purchase displays/kiosks, educational brochures, fliers, and miscellaneous supplies.

Travel expenses assume a total of 24 trips from Austin to Bay Area (1 per month) and 12 trips from Boulder to Bay Area (one every other month) at \$1,500 per trip for air fare, lodging, car rental, and per diem expenses. It also assumes local staff travel at approximately 180 miles per month at \$0.365 per mile.