PGE2071 PTAC—QuEST

2006 - 2008

1. Projected Budget*	$2,640,621
2. Projected Net Impacts	
MWh	9,690
MW (Summer Peak)	1.965
Therms	0
3. Cost Effectiveness*	
TRC	1.7
PAC	2.46

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

4. Program Descriptors

Market Sector: Hospitality
Classification: Third Party
Status: New

The following section describes the primary program components. Generally the program components are marketing and outreach, audit and energy efficient measures, project development, implementation, and training. The components are designed to obtain savings earlier in the process, and drop customers who are unable to implement measures or participate in ways to make the program a success. Each section is described in detail below.

Marketing, Outreach and Program Roll Out

In an effort to achieve savings immediately, QuEST will target relationships with our existing clients including Marriott and its Marriott-brand Courtyard, Residence Inn, Renaissance, Fairfield Inn and Town Place Suites, and relationships with the Starwood chain including Westin, Sheraton, W and Four Points properties. While development of brochures, presentations, websites, and case studies might be helpful when rolling out a program, QuEST is confident that our existing contacts, plus any spillover with other chains and independents will likely be sufficient to quickly provide significant energy savings in HEEP.

In order to participate, interested customers must sign a participation and site access agreement, as well as provide utility data and building drawings and documentation. This initial request can be a useful screen to ensure that customers have some level of commitment. A QuEST engineer will be assigned to the hotel and provided the collected data. An appointment is set for the energy audit agent to meet building operators and inspect mechanical and electrical systems.

Comprehensive Audit

This phase includes the analysis of the building's electric and gas use, inspection of the building's systems configurations and controls, identification of a comprehensive list of energy conservation measures (ECMs), retro-commissioning opportunities, distributed generation, and deferred maintenance items that should be corrected before proceeding. The Evaluation Phase report also identifies trades and engineering specialties required to deliver the project. Separately, the energy auditing team prepares an implementation plan that describes the scope of the engineering and design work, a schedule and a budget.

After judging if they are reasonable, the owner must demonstrate a level of commitment to the program by implementing the recommended measures. This is the second test of the customer's commitment. If the customer implements the recommended measures and elects to proceed, the program inspects the measures and pays the incentives.

Engineering and Design Activities:

In this phase, before any retrofit or equipment replacement takes place, the building systems are commissioned and/or retro-commissioned to ensure optimum performance, although this work mostly applies to full-service hotel central plant systems, and for extended stay hotel rooftop units. The building's control system is investigated and an operational assessment is performed. Data will be collected, investigations and testing of the buildings systems and equipment are conducted, and lists of improvements are compiled. In cases where the improvement costs are low, QuEST will make the changes immediately. The engineering team will be responsible for overseeing all aspects of the project, from identifying roles and responsibilities, scheduling HEEP activities, specifying pre-functional and functional tests, and monitoring and trending of data. The deliverables from this phase are:

1. List of retro-commissioning opportunities with estimated energy savings and cost
2. An ECM measure (including PTAC/FCU upgrades) list complete with estimated energy savings, costs, and incentives
3. Detailed engineering and specification documents for large equipment replacement
4. Demand-response opportunities with estimated savings and cost. Technology to implement this measure will be identified.
5. Self-generation opportunities with preliminary savings and cost estimates.

Project Development

Our implementation experience shows that, by themselves, financial barriers rarely stop cost-effective energy efficiency projects from being implemented. We have personally seen many cases where projects did not move forward even when they generated energy savings and all costs were covered by a program. Combinations of institutional barriers, hassle/transactions

costs, information/search costs, lack of knowledge, and asymmetric information all contribute to stalling/stopping energy efficiency projects.

The proposed Hospitality Energy Efficiency Program can eliminate a number of implementation barriers by assembling all required components together in order to push each cost effective project through to implementation. In addition to the audit results (savings, costs and payback), QuEST will develop a full package including financial analysis (NPV and ROI calculations) along with escalation factors for energy, operations and maintenance, and depreciation. These escalation factors allow a more accurate accounting of costs and permit hotel staff to perform "what if" scenarios and sensitivity analyses. We find that these tools help reduce asymmetric information barriers as hotel staff can "play with the numbers," thereby becoming more comfortable with and knowledgeable about the project assumptions. Last, financing for these projects (through Team Leasing LLC) will be offered in HEEP to help mitigate any remaining financial barriers associated with implementation. This financing model has worked well with another capital-constrained sector, the convenience store market.

Implementation

QuEST can provide a range of services, from design and specifications, to bid assistance and "contractor walks", all the way to full construction or construction management. As stated above, many non-financial barriers can stop projects from being implemented. Our implementation-oriented focus for HEEP can help eliminate these barriers and provide a key to delivering energy savings on time and within budget.

We will commence implementation after receiving the customer's approval of the installations proposed in the site's engineering report. QuEST is one of the few full-service energy-efficiency-engineering firms (California Contractor License #836023) and can manage all aspects of construction projects. The decision to use QuEST as a general contractor is solely up to the participants – our first goal is to achieve the energy savings, not to do the construction work. If a hotel's property manager decides to manage the project themselves or would like to use a different general contractor, they will not be tied to using QuEST.

The expected time frame for delivery of energy savings is provided in the completed Table submitted under item 2. above.

5. Statement

The hospitality industry faces a number of barriers to energy efficiency including: hassle/ transactions costs, high initial cost, and information/search costs. Each barrier is addressed below.

- **Hassle Factor and Transaction Costs**. Reduced staffing loads require that all available hours be put towards "keeping this place running." Trying to develop energy efficiency projects, working with contractors, etc. is a "luxury" very few if any hotels' or motels' staff have any time for.

- **High Initial Cost**. Budgets are tight for all the hospitality industry's sectors (full service through budget). For all types of properties, money invested in energy efficiency has to compete with expenditures needed for room upgrades and/or concession build-outs, which are far more visible to customers. For budget and extended stay motels a $30K investment can limit financial flexibility for a number of years, not permitting additional investment into other capital items.
- **Information/Search Costs**. Acquiring information about potential energy efficiency projects is not a free endeavor. For many hotel chains, the aftermath of September 11th, 2001 caused significant hardship, and ultimately job reductions. Most of the hotel engineers that we have worked with put in 50 plus hours a week. With these hours, there is little or no time to investigate energy efficiency projects.

These barriers are significant and can partially explain why inefficient, non-centrally controlled PTAC units continue to "rattle away" in most hotel rooms and are typically running when you first check-in to the room.

6. Rationale

According to the *2004 Lodging Industry Profile* by the American Hotel & Lodging Association, there are 4.4 million hotel rooms in the U.S., with 516,636 (11.7 percent) of them located in California. Approximately 30 percent of those rooms are in the areas served by PG&E, and a large concentration of hotels is in San Francisco and the surrounding Bay Area cities. Metropolitan Areas served by PG&E accounted for over 37 percent of the total personal travel (both business and leisure) to California in 2004, the latest year available.[1] Establishing a high-profile program here will facilitate its promotion and marketing outside of the Bay Area. Our proposed solution targets less than 20 percent of the potential energy reduction identified by PG&E.

The following principal barriers to energy efficiency facing the lodging industry can be reduced by HEEP.

- **Hassle Factor and Transaction Costs**. In addition to conducting complete hotel system audits, HEEP will develop a complete installation package including measure descriptions and associated cost and savings. Financial analysis will show the NPV and ROI calculations to make the case clearly to financial officers, or their equivalent. As needed, HEEP will provide assistance with all phases of construction from identifying contractors to executing and managing design-build projects.

- **High Initial Cost**. In addition to free audits, HEEP will provide incentives and financing to ensure that energy efficiency (EE) projects get implemented. Further, the financing component can be key in solving cash flow issues that may cause hotel properties to cherry pick only the most cost-effective measures, for example those with a 6 month payback or less.

[1] *Ibid.*

- **Information/Search Costs**. All project information will be packaged for hotel operations and financial staff. QuEST has allocated resources to assist hotel staff in any information gathering associated with the installation of identified measures. To reduce search costs in previous programs, QuEST has used all financial and investment tools and internal reports to ensure that the energy efficiency project results are in a format that the decision makers can understand and are familiar with.

7. Outcomes

The HEEP will deliver 9,689,995 kWh is annual energy savings by the end of 2008. The program will also educate building engineers in techniques they can use to optimize systems and insure that savings realized through the program persist over the life of the equipment. The primary indicator of success will be meeting our milestones for installed, inspected, and rebated energy efficiency measures identified by the program engineers,

8. Strategy

The lodging industry has a complicated decision-making process for efficiency investments. This is because property ownership and property management interests are frequently not aligned. Ownership interests will often prefer cosmetic-type improvement to attract customers (e.g., room upgrades) while management may be interested in improvements that reduce operating costs. Such improvements include replacement of major building systems (e.g. PTACs, controls, lighting). HEEP will offer rebates to prospective customers to avoid lost opportunities due to this decision-making issue. Additionally, we will offer a turnkey solution, with QuEST acting as the prime contractor, so that the installation is as simple and effortless for the customer as possible. Further, our approach is comprehensive and focuses on nearly all loads and opportunities in the hotel facility. Listed below are measures from a recent hotel audit, typical of systems and sub-systems that will be analyzed for potential energy savings opportunities in HEEP. This list is not meant to be exhaustive.

Retrocomissioning (R-Cx) Measures

1. Repair economizer control on AHU-1, 3, 206 and recalibrate of 2,4, 203-207
2. Repair economizer control on AHU-201
3. Implement supply air temperature reset for corridor air handlers
4. VFDs for AHUs 2 & 206 were in fault and running at 100 percent
5. Install VFDs for exhaust fans on AHUs 1-4, 201-208
6. Turn off ice storage system due to lower direct access electric costs
7. Run one chiller compressor at 60 percent for longer time period
8. Enable both sets of cooling tower fans to run together
9. Install VFD on additional secondary hot water pump
10. Install VFDs on fountain pumps
11. Install new CO sensors to control garage exhaust fans

12. Close roll-up door at loading dock
13. Integrate Rooms A-C and Salons 7-9 lighting controls with BAS AHU schedule
14. Restroom lighting occupancy sensors in ballroom area
15. Retrofit incandescent fixtures in two meeting rooms

Retrofit

1. Install thermostat with occupancy sensor set back control in guest room
2. Retrofit T12 light fixtures in meeting rooms
3. Retrofit T12 exterior decorative lighting at view level to T8
4. Replace CFL exit signs with 2W LED type

A review of the systems and measures listed above demonstrates the comprehensive nature of our analysis and ensures that all cost effective opportunities will be identified and analyzed. The PTAC Program will evaluate all systems for RCx measures as well as retrofit measures, in an effort to capture all cost effective savings. No other program has been as thorough in attempting to capture the maximum savings.

9. Objectives

35 Customer participation agreements, or a sufficient number to meet program savings goal, will be collected during HEEP implementation.

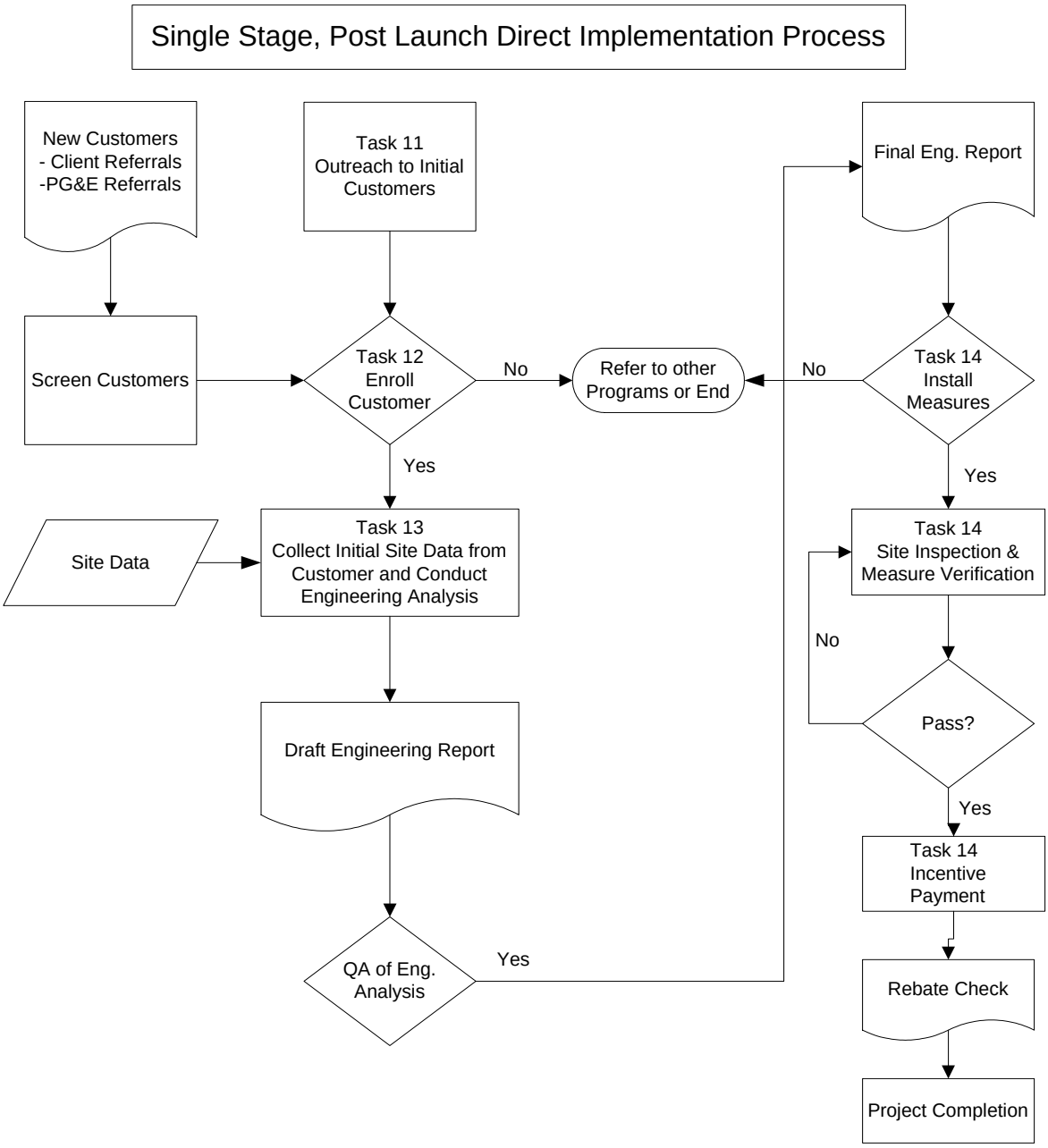
35 Engineering Reports, or a sufficient number to meet program savings goal, will be delivered to participants, describing proposed Energy Conservation Measures to be installed.

Written verification/confirmation from all customers that the hardware has been installed on site in a correct and professional manner, including punch list items. QuEST will conduct an on-site inspection of all installed measures to verify performance and savings, and document final passed measures and savings realized from each project..

10. Implementation

Exhibit 1 shows the HEEP implementation activities that QuEST will use to achieve the program objectives. These implementation activities are described below in the following tasks.

Exhibit 1
Direct Implementation Process Flow Chart



Initiate Customer Marketing and Outreach for "General" (Non-Pre-Qualified) Customers

QuEST will identify potential participants for this program using the HEEP Marketing Plan together with available energy consumption information and operations characteristics. These "general," potential participants, will be screened using the available information and, for the

qualified customers, be asked to enroll in HEEP. We have become quite knowledgeable from our previous commercial sector EE program management experiences about how to market energy savings to commercial customers who always seem to have a veritable universe of business challenges in front of them.

Among the first marketing and outreach activities we will undertake is a series of telephone calls to hotel and motel facilities in the Bay Area (and after these are underway, to other localities in Northern California) as well as face-to-face meetings with hotel/motel industry personnel and trade associations such as the American Hotel & Lodging Association. These calls and meetings will serve to announce that HEEP is operational and ready to assist potential participants. During these calls and meetings we will always ask attendees to give us the names of other possible participants they know, so we can contact these referred people and firms. Where appropriate, we will distribute HEEP marketing materials.

The HEEP marketing and outreach activities will continue through the program's implementation phase until there are sufficient energy savings to realize the program objectives.

Enroll Customers

To enroll qualified hotels/motels in this program, QuEST will implement the Marketing Plan and utilize HEEP marketing materials. Customer enrollment is basically the "closing the sale" activity that QuEST will undertake with qualified customers who have been marketed to. Screening to identify qualified hotels/motels will use available energy consumption information and operations characteristics. The screened, qualified customers will be asked to enroll in HEEP. Shortly after enrolling, the customer will be asked to comment on their satisfaction and experience with the HEEP marketing/outreach/enrollment process. Feedback gained from these customers on this brief survey will be used to improve the process.

Perform Engineering Services

This implementation task will focus on conducting engineering analysis at the enrolled customer's facility. This analysis will be undertaken by a licensed Professional Engineer provided by QuEST or Federspiel Controls. The site engineering analysis will assess the energy savings opportunities and complete a comprehensive project development/engineering report. The project development/ engineering report will include assessment of all cost-effective measures including retrofits, retro-commissioning, self-generation, and demand response. Specific attention will be paid to wireless control of PTAC/room units, managed at from the hotel/motel's front desk. Implementation costs, estimated savings, and rebates will be presented for each proposed measure. Rough guidelines and specifications will also be included. A draft report will be developed and then subjected to QuEST's Quality Assessment (QA) procedures. If the QA of the report passes muster, the report will be finalized and presented to the potential HEEP participant for consideration and approval. If changes need to be made, the report will be revised to pass the QC procedures. The revised, corrected Engineering Report will then be presented to the potential HEEP participant for consideration and approval.

Once the customer has selected the measures they want installed, QuEST will assist in their installation, or if requested, QuEST will install the measures.

Install Energy Efficient Hardware / Issue Customer Rebates

After the customer agrees to become a HEEP participant and has selected energy conservation measures (ECMs) to be installed from the Engineering Report, QuEST will assist in their installation, or if requested, QuEST will install the measures.

After installation of the ECMs is complete, QuEST or Federspiel Controls will walk the job with the customer to demonstrate that the hardware has been installed according to the specifications in the Project Development Report. A "punch list" will be developed as the result of this activity with specific items to be completed. All the items in contention will be resolved within fifteen (15) days after the job walk.

Although QuEST does not expect any HEEP participants to have equipment installation issues, we will use the Quality Assurance Plan and Dispute Resolution Plan (DRP), should any installation issues arise. We will first re-inspect the disputed installation job with the customer to understand the customer's issue. We will then determine what remedies QuEST will undertake to resolve the issue and propose to undertake these remedies. In the unlikely event that the customer does not believe our proposed remedy is sufficient, we will initiate the HEEP DRP.

After QuEST has verified the ECMs' installation and received verified participant and contractor invoices, incentive payment(s) will be processed and rebate check(s) provided to the participant or project sponsor. Shortly after receiving the rebate check, the participant will be asked to comment on their satisfaction and experience with the HEEP installation and payment process. Feedback gained from these customers from this brief survey will be used to improve the process.

Program Management

QuEST will provide all contract and program management services including program activity tracking, required PG&E and CPUC reporting, subcontractor management, and draft and final program reports. Program management includes contract and program management, program application development, and monthly, quarterly, and final reporting. Contract and program management includes management of subcontractors, maintenance of a program tracking system, and generally ensuring that the program proceeds as planned.

11. Customer Description

QuEST has extensive experience and contacts within the hospitality market segment – particularly with the Marriott and Starwood hotel chains. This level of familiarity with the market, and major market actors, means that we already have several large property owner representatives who have expressed an interest in participating in the HEEP. Marketing for HEEP with aggressive goals obviously differs from programs with more modest goals, or other

objectives such as market transformation. Clearly the approach to capturing 50 properties is different from capturing 10 properties. With these significant goals the following tactics are needed:

- **Market to and capture companies with multiple properties rather than single sites.** We will emphasize marketing efforts on companies with multi-site holdings (e.g. Starwood and Marriott), thereby stretching marketing resources. Clearly if separate buildings were to be acquired individually, marketing resources would likely be insufficient. The HEEP will also conduct outreach to owners of single (or relatively few) sites as needed through standard channels within PG&E.

- **Focus on managed properties rather than franchised properties.** Within the Hospitality business, managed properties have been more aggressive in adopting energy efficiency projects relative to franchised properties. Effectively, corporate energy managers have more control over energy strategies at managed properties, and are used as more of a resource by hotel engineering managers.

- **Development of cross industry marketing channels.** Generally only one leader within a sector is required to build momentum.

- **Leverage market movers and first adopters.** Within the hospitality sector, energy efficiency interest is not evenly distributed; some firms, such as Marriott, are at the leading edge, while others within the hospitality sector have not expressed interest. Working to leverage these market movers through press releases in the financial press and hospitality specific publications can get the less innovative firms to adopt energy efficiency initiatives

12. Customer Interface

HEEP is designed to be easy to for customers to use and easy for them to understand – this is particularly important for programs that are new. The HEEP marketing and outreach activities have been created so that each component is straightforward and free of confusion, these components include:

- Recruitment presentations

- Participant enrollment – QuEST will work closely with decision makers to ensure they have a comprehensive understanding of the program benefits and costs.

- Leverage interest within market segment

13. Energy Measures and Activities

13.1 Prescriptive measures. Include the measure details in the cost-effectiveness calculator (no need to duplicate measure list in the narrative).

13.2 kWh Level Data. Include the measure details in the cost-effectiveness calculator (no need to duplicate measure list in the narrative.

13.3 Non-energy Activities

13.3.1 End-use Load (if applicable)
13.3.2 Targeted Sector
13.3.3 Activity Description
13.3.4 Quantitative Activity Goals
13.3.5 Assigned Attributes of the Activity

13.4 Subcontractor Activities

Description of activities expected to be performed by subcontractors.

QuEST will provide the majority of program design, administration, and marketing functions for HEEP. Several program activities will be performed by our proposed subcontractor, Federspiel Controls. Exhibit 7 provides a summary list of the major program activities required and contractor responsibilities.

Exhibit 7
Program Contractor Activities

TASK	CONTRACTOR
Administration:	QuEST
Policy and procedures manual	QuEST
Subcontracts and work authorizations	QuEST
Invoicing and payment	QuEST
Monthly reporting	QuEST
Incentive payment	QuEST
Progress tracking	QuEST
Energy Services provider solicitations	QuEST
Account management functions	QuEST
Recruitment:	
Customer Lists	QuEST
Presentations to groups	QuEST
Presentations at customer sites	QuEST
Marketing:	
Website development	QuEST
Case Studies	Federspiel Controls
Business Case Development	QuEST
Presentations	QuEST
Brochures	QuEST
Program Design:	
Evaluation Phase report templates	QuEST
Design Phase report templates	QuEST
Calculation spreadsheet formats	Federspiel Controls
Policy and Procedures Manual	QuEST
Monthly report templates	QuEST
Implementation:	
Design and Specification Documents	Federspiel Controls
Subcontractor Selection	QuEST
Construction and Project Management	QuEST
Operation and Maintenance Manuals	Federspiel Controls
Measurement and Verification	Federspiel Controls
Hand-off Activities:	
ECM Installation Inspections	QuEST

Subcontracted Roles

QuEST will subcontract to Federspiel Control, Inc. for assistance in program infrastructure development (such as creation of report templates, manuals, and savings calculation procedures), and verification of savings. Federspiel Controls will also provide wireless control technology and systems integration in cases where it is needed.

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13.5 Quality Assurance and Evaluation Activities
Description of expected quality assurance and evaluation activities, including expected number/percent of inspections (planned percent of projects).

QuEST has an existing Quality Assurance and Measure verification process that was initially developed for the BTU Program. The HEEP quality assurance (QA) process will be based on this past experience. The QA process is designed to maintain consistency and assure that program deliverables, including reports, measures, and installations meet the specified standards and timeliness. There are several program milestones throughout the program's process that must be tracked. Each of these milestones will trigger an element of the QA process.

The QA process is designed to assure that these measures are properly and clearly described, and that savings and costs estimates are reasonable and meet the standards set by the HEEP. Specifically, when reviewing each of these reports, the QA process will consider each measure according to the following list.

- The recommended Energy Conservation Measures are feasible, the calculations are reasonable, assumptions are well documented and supported and clearly written, and the cost estimates are within expectations.

- The cost-effectiveness of the measures is within an acceptable range.

- The measures are clearly not capital-intensive retrofit or replacement projects, that is, the measures improve the performance of the *existing* systems.

- Determined based on the "reasonable person" standard, the customer will not implement the recommended measure due to high cost, long payback, or unusual nature of the measure.

- The measures can be predominately classified as "hard" measures. Engineering measure packages consisting of primarily "soft" measures will have a short useful life. A package of "soft" measures may be acceptable only if the Engineering agent indicates there is a system the customer can implement to notify operators when the measures are being defeated or their performance is degrading.

After the measures have been installed, the QA process will include an inspection process to verify proper installation and operation of each recommended measure. Inspections will be performed before incentives are paid. We have developed a thorough inspection process, as described below.

The program will also review each element of the Hand-off phase, specifically the final report, system operation/measure support documentation, and any training materials deemed necessary by Engineering providers.

Finally, at each milestone, the customer tracking system will be updated to record delivery dates, issues and new information, measures recommended and installed, and inspection results. A good customer tracking system is essential to the delivery of a quality HEEP.

Inspection Process

The QuEST engineering staff provides technical advice as the owner installs the Engineering measures. After installation, the Engineering agents inspect and validate the installed measures, and take spot measurements or collect trend log data, if necessary.

It is important to be as thorough as possible while conducting and documenting inspections so the energy savings will count towards the program goals. In particular, the process for completing inspection forms is critical and gathering all available supporting documentation is essential to demonstrate to PG&E and the CPUC that we are paying customers' incentives properly. Invoices for installed measures should be collected wherever possible, and when a measure was carried out with in-house staff, we request documentation of the customer's costs in terms of time and materials used to implement a measure or measures. All of these issues are reinforced to the customers at multiple points so we avoid any uncomfortable situations where we are unable to pay an incentive that the participant is expecting.

13.6 Marketing Activities

Describe marketing plan and strategy, and how the marketing plan will help achieve program objectives.

The purpose of the marketing and customer recruitment phases of the program is to raise customer awareness about the program benefits, and to enroll qualified buildings. QuEST will be responsible for developing all marketing materials needed for indirect and direct marketing activities including program brochures, presentations, press releases, trade journal articles, etc. QuEST will be responsible for executing the screening process in each candidate building. We will coordinate our marketing efforts with the PG&E program manager and the account representatives for the customers being targeted.

QuEST's marketing plan will include the following strategies/tactics are needed:

- **Market to, and capture companies with multiple properties rather than single sites.** We will emphasize marketing efforts on companies with multi-site holdings (e.g. Starwood and Marriott), thereby stretching marketing resources. Clearly if separate buildings were to be acquired individually, marketing resources would likely be insufficient. The HEEP will also conduct outreach to

owners of single (or relatively few) sites as needed through standard channels within PG&E.

- **Focus on managed properties rather than franchised properties.** Within the Hospitality business, managed properties have been more aggressive in adopting energy efficiency projects relative to franchised properties. Effectively, corporate energy managers have more control over energy strategies at managed properties, and are used as more of a resource by hotel engineering managers.

- **Development of cross industry marketing channels.** Generally only one leader within a sector is required to build momentum. A case in point is the Building Tune Up Program's initial foray into the high-tech facilities market that has resulted in numerous other participants from that sector. Targeting recognized leaders in each sector pays dividends. For example, Marriott has used the Building Tune Up Program to gain national recognition in Forbes, the WSJ, and elsewhere for the Marriott Retro-commissioning Program. Now, interest amongst others in the hospitality sector is developing, including the Starwood Corporation.

- **Leverage market movers and first adopters.** Within the hospitality sector, energy efficiency interest is not evenly distributed; some firms, such as Marriott, are at the leading edge, while others within the hospitality sector have not expressed interest. Working to leverage these market movers through press releases in the financial press and hospitality specific publications can get the less innovative firms to adopt energy efficiency initiatives.

QuEST has already assembled several of the important components required for the marketing plan. These include:

- Recruited several large multi-site property owners who are ready to begin energy efficiency projects, greatly enhancing the program's ability to meet the recruitment goals under the aggressive timeline

- Created several marketing materials, including brochures, presentations of business cases, and case studies from similar properties, that can be used as models for the new program,

- Leveraged several other national programs and offerings to enhance the program's attractiveness to owners, including ENERGYSTAR™ and LEED-EB.

- Developed and presented the business case for a number of the HEEP's retrofit measures to Starwood and Marriott Corporate management.

14. Conclusion

The Hospitality Energy Efficiency Program (HEEP) is a turnkey, comprehensive energy efficiency program targeting the potential savings opportunities in existing hotels and motels lodging industry that result from inefficient operation of the buildings systems and inefficient

equipment. Owners are often unaware that significant energy and cash savings are available through correcting these operational flaws and replacing current systems. Their perception is that if the guests aren't complaining, then nothing is wrong. They often do not understand how to address these problems, and procure quality services. They perceive the price of these services as being too high. Finally because they do not understand the process, they may not trust the service provider or vendor that offers the services.

HEEP plans to overcome each of these barriers through proven program activities. We will provide owners and managers with educational materials and demonstrations of their facilities' energy performance in comparison with similar buildings. The program will provide qualified energy services providers at no cost to the owners/managers, thereby eliminating their transaction costs, and reducing the burden of high first costs.

The 2006-08 HEEP features two key improvements designed to increase the program's effectiveness and efficiency: (1) enhanced screening of customers, to eliminate those that will not implement even simple, low-cost ECMs recommended; and (2) a turnkey approach to implement recommended ECMs to achieve the program's energy savings.