



**The LightWash Program**  
**Incentives for Efficient Commercial Clothes Washers and**  
**Laundromat Lighting and Boilers**

Presented to  
California Public Utilities Commission

Presented by  
Energy Solutions

Proposal Contact:  
Ted Pope  
Energy Solutions  
1738 Excelsior Avenue  
Oakland, CA 94602  
510-482-4420 ext. 221  
ted@energy-solution.com

Other Programs Proposed:  
None

Presented on  
September 23, 2003

## TABLE OF CONTENTS

<b>I. PROGRAM OVERVIEW</b> .....	<b>1</b>
A. PROGRAM CONCEPT .....	1
B. PROGRAM RATIONALE .....	2
<i>LightWash 2002-2003 Local Program Success</i> .....	2
<i>Why Reauthorize LightWash?</i> .....	3
C. PROGRAM OBJECTIVES .....	7
<b>II. PROGRAM PROCESS</b> .....	<b>8</b>
A. PROGRAM IMPLEMENTATION .....	8
<i>Task 1: Program Development, Implementation, and Management</i> .....	8
<i>Task 2: Marketing</i> .....	9
<i>Task 3: Operations, Processing and Verifications</i> .....	10
<i>Task 4: Evaluation, Measurement, and Verification (EM&amp;V)</i> .....	11
<i>Coordination of Implementation with Other Energy Efficiency Programs</i> .....	12
<i>Distinctions Between LightWash and Statewide Program</i> .....	12
B. MARKETING PLAN.....	13
<i>Marketing Strategy</i> .....	13
<i>Marketing Materials</i> .....	15
<i>Coordination of Marketing with Other Energy Efficiency Programs</i> .....	16
<i>Coordination with Efficiency Partnership Statewide M&amp;O Program</i> .....	16
C. CUSTOMER ENROLLMENT .....	17
<i>Washer and Instantaneous Water Heater Boiler Rebate Program Enrollment Process</i> .....	17
<i>Lighting Program Enrollment Process</i> .....	17
D. MATERIALS .....	17
<i>Commercial Washer Program Element</i> .....	17
<i>Laundromat Instantaneous Water Heater Boiler Program</i> .....	18
<i>Laundromat Lighting Retrofit Program Element</i> .....	19
E. PAYMENT OF INCENTIVES.....	19
<i>Process for Payment of Washer and Instantaneous Water Heater Boiler Incentives to Customers</i> .....	19
<i>Process for Payment of Lighting Incentives</i> .....	20
F. STAFF AND SUBCONTRACTOR RESPONSIBILITIES .....	21
G. WORK PLAN AND TIMELINE FOR PROGRAM IMPLEMENTATION.....	22
<b>III. CUSTOMER DESCRIPTION</b> .....	<b>23</b>
A. CUSTOMER DESCRIPTION.....	23
B. CUSTOMER ELIGIBILITY .....	24
C. CUSTOMER COMPLAINT RESOLUTION .....	24
D. GEOGRAPHIC AREA.....	25
<b>IV. MEASURE AND ACTIVITY DESCRIPTIONS</b> .....	<b>27</b>
A. ENERGY SAVINGS ASSUMPTIONS .....	27
B. DEVIATIONS IN STANDARD COST-EFFECTIVENESS VALUES .....	28
<i>Commercial Clothes Washer Savings, Sources and Calculation Methodologies:</i> .....	28
<i>Laundromat Boiler Retrofit Savings Sources and Calculation Methodology</i> .....	32
<i>Laundromat Lighting Retrofit Savings Sources and Calculation Methodology:</i> .....	33
C. REBATE AMOUNTS.....	35
<i>Clothes Washer Element</i> .....	35
D. ACTIVITIES DESCRIPTIONS .....	36
<b>V. GOALS</b> .....	<b>37</b>
MEASURABLE ENERGY EFFICIENCY ACTIVITIES .....	37
MARKETING ACTIVITY GOALS .....	37
<b>VI. PROGRAM EVALUATION, MEASUREMENT AND VERIFICATION (EM&amp;V)</b> .....	<b>38</b>

<b>VII. QUALIFICATIONS .....</b>	<b>40</b>
7.1 PRIMARY IMPLEMENTER.....	40
7.2 SUBCONTRACTOR .....	43
7.3 RESUMES .....	43
<b>VIII. BUDGET.....</b>	<b>45</b>

# I. Program Overview

## A. Program Concept

With the support of over 30 local governments (water utilities) in Northern California, Energy Solutions is pleased to provide this proposal for continued partnership with the California water utility industry to implement the innovative LightWash program. LightWash is a local program that provides incentives for the installation of energy and water efficient commercial clothes washers in non-single-family residential properties and lighting and boiler system incentives in coin laundry stores (e.g., Laundromats). This proposal seeks \$1,353,539 in funding for program operations within the PG&E service territory. Collaboration with the local water utilities will magnify the PGC incentive funds by three-fold. The program primarily targets two hard-to-reach market segments, “residential – multifamily” and “very small non-residential” customers, in an effort to overcome the challenging split incentive and other barriers that frustrate broader adoption of these gas and electric measures. The program continues and expands upon an existing CPUC-funded local program that is on track to meet or exceed goals. LightWash will continue to leverage non-PGC incentive funds from water districts and add value through economies of scale achieved by consolidation of program infrastructure and marketing. The program will continue to deliver excellent cost effectiveness despite the hard to reach target market. Projected net life cycle savings are as follows: 4 million therms, 27 million kWh, 284 peak kW, and 520 million gallons of water, at a TRC of over 2.2 and PPT of close to 14. Additionally, in 2004-5, LightWash will adopt a two-tiered incentive system that will reward the newest ultra-high efficiency washers and speed their entrance into the market.

## B. Program Rationale

### *LightWash 2002-2003 Local Program Success*

The Commission can mitigate portfolio performance risk by continuing funding for successful local programs. Since 2001, Energy Solutions has completed six “third party” or “local” program contracts and has exceeded goal on every one. We are on track to exceed goals on our current local program contracts.

This effort, LightWash, is a success from a number of perspectives. The program saves both gas and electricity and is on track to meet goals—in fact, by the end of this month, we expect to have reached goals in Southern California Gas service territory. As intended, the 2002-2003 LightWash program has been a catalyst in marshalling existing water agency resources and interest in promoting energy efficient commercial washers. LightWash has tripled the PGC incentive money with water rebates and has improved cost-efficiencies by obviating the need for 13 additional, local water utility program processing infrastructures. The interconnections between LightWash and its water utility partners have been smooth and not one customer complaint has been filed to date. The LightWash program has actively engaged in collaboration with other CPUC funded “local program providers” to cross-market each other’s programs.

By linking PGC and water utility incentives with a consolidated, multi-pronged marketing and outreach approach, LightWash increased the awareness and market penetration of high efficiency commercial clothes washers. LightWash has achieved over 75,000<sup>1</sup> advertising “impressions” among its target

Participating Water Utility Program Manager Comment:

”I just wanted to commend you on the remarkable in-roads that you've made with the Light Wash Program. You've utilized existing water conservation programs, adopted winning marketing techniques, and hired savvy marketing staff that already know the service area and the dealers. I'm very appreciative of all your efforts to seamlessly weave our programs together without conflict. Since you're probably still in the forest, you may not realize what an extraordinary job you have done!

Thank you!”

Rose M. Smutko  
San Diego County Water Authority

market audiences through the use of direct mail, advertisements in major and minor industry journals, coverage in newsprint, bill inserts, and “technical” article placements in periodicals. We have worked closely with the laundry equipment vendors (distributors, retailers and route operators) who in turn have been extremely influential in promoting the

Trade Ally Comment:

“As a major distributor of high efficiency commercial Maytag washers, Innovative Laundry hopes to see the LightWash program continue in 2004-2005. Having a single, well-run program that provides combined rebates over a broad territory limits customer and distributor confusion, and helps me promote high efficiency products.”

K.P. Forrest  
General Manager  
Innovative Laundry Service

---

<sup>1</sup> As of June 30, 2003.

high efficiency products despite the extra efforts required (see Figure 1 section II). Furthermore, the program was able to assist some manufacturers to engage more quickly with the national Consortium for Energy Efficiency in order to get their new products onto the national product lists sooner.

With rebates for 3,896 qualified washer in process or fully paid as of September 18, the LightWash program has achieved the following savings impacts shown in Table 1 below.

**Table 1. LightWash Achievements to Date**

Net Life Cycle Energy Savings (kWh)	Net Peak Demand Reduction (kW)	Net Life Cycle Natural Gas Savings (therms)	Net Life Cycle Water Savings (gallons)
20,366,000	312	2,095,000	628,300,000

This program helps strengthen the momentum for partnerships among the water and energy efficiency industries, a key cooperative opportunity that has not been fully exploited to date (the water industry in California represents approximately six percent of California’s energy use). Such collaboration is a natural extension of the cooperation among state agencies articulated in the 2003 State of California Energy Action Plan and helps the Commission “meet California’s energy growth needs while optimizing energy conservation and resource efficiency and reducing per capita electricity demand,” through specific action number seven, “Increase local government conservation and energy efficiency programs.”

***Why Reauthorize LightWash?***

A large savings opportunity remains in the PG&E service territory for water and energy savings from efficient commercial clothes washers. Acquiring these savings will require not only the impending state standard but a continued programmatic effort to push past this moderate standard and continue the market transformation toward extremely high efficiency washers that are already well-established in the market, thereby making it possible to promulgate subsequent Title 20 standards that achieve the full savings opportunities permanently. Thus, reauthorizing the LightWash program will help assure California’s access to these large savings opportunities while advancing the Commission’s efforts to meet its many policy objectives.

In California, more than one-quarter of households do not have clothes washers within their living unit. Most of these households therefore use “commercial washers” in institutional and multi-family common areas or coin laundry stores and each machine is used multiple times per day so savings are larger than for single-family washers. There are an estimated 350,000 commercial washers in the California. The technical annual potential savings for converting all standard commercial washers to efficient washers (meeting this program’s highest specifications) is shown below:

**Table 2. Technical Savings Potential Relative to 2003**

	Annual Energy Savings	Coincident Peak Demand Reduction	Water Savings	Energy Savings Embedded in Water Efficiency
Single Washer	437 kWh 94 Therms	0.0746 kW	27,495 gallons	188 kWh
California-Wide	153,000,000 kWh 33,000,000 therms	26 MW	9.6 billion gallons	65,800,000 kWh

Commercial washers are not impacted by the federal efficiency standards, but are subject to a recent California standard (Title 20) that phases in over two stages. In 2005, an energy efficiency requirement of 1.26 or higher modified energy factor (MEF) takes effect. Then, in 2007, a water efficiency requirement of 9.5 or lower water factor (WF) takes effect. LightWash and its participating water utilities, as well as other entities, have been successfully promoting commercial washers that often exceed these standards by significant amounts. While substantive savings exist beyond the imminent standard, we are very concerned that the implementation of the standard could effectively stall the developing market transformation toward very efficient commercial washers (which is “leapfrogging” the imminent standards). This potential stall is a product of the pervasive market perception that what passes code immediately after a substantive new code takes effect is by definition very efficient and that one need not look further than code equivalent performance for big savings. Program efforts are required to bypass this inevitable eddy current that follows a new standard by continuing to promote benefits of very high efficiency products relative to the new code. Thus, the Commission should reauthorize LightWash not only for the savings it specifically proposes to deliver as described in section IC below, but because LightWash can be a crucial tool in achieving the technical potential outlined above.

In addition to achieving savings and accelerating market transformation, reauthorization of LightWash will help the Commission meet the following objectives:

□ **Cost Effectiveness**

The LightWash continuation proposal ensures large, cost-effective energy, peak demand, and water savings impacts. Over the life of the measures installed, this cost-effective program will save an estimated: 4,149,000 therms, 27,448,000 kWh, 284 peak kW, and 542,336,000 gallons of water. The TRC Net Benefits exceed \$1.4 million and the TRC Ratio is estimated at 2.2. These significant benefits are delivered in the context of a program serving almost exclusively hard-to-reach customers.

□ **Long-Term Annual Energy (And Water) Savings**

In addition to acquiring savings lasting a decade, reauthorization will allow LightWash to build on the recent market transformation momentum (evidenced by a variety of new commercial washers that substantially exceed impending requirements) and will promote continued improvement in commercial washer technology far beyond near term standards. This support for encouraging “beyond code performance” will help set the groundwork for subsequent, more rigorous Title 20 appliance standards that permanently lock in energy efficiency gains supported by these PGC investments.

## □ **Electric Peak Demand Savings**

The LightWash program achieves both large natural gas savings and significant peak demand reduction savings through its improvement of lighting efficiency in a sector where lighting is on throughout the entire peak period. Indirectly, LightWash's 40 to 60 percent reduction of daytime water and wastewater reduces peak energy consumption attributable to water utilities and water treatment agencies (though these numbers are not captured in the analysis).

## □ **Equity**

The program primarily targets two hard-to-reach market segments, “residential – multifamily” and coin laundry stores, which are “very small non-residential.” The multi-family participants all qualify as “hard-to-reach” due to the “housing type” category. The coin laundry stores generally qualify as “hard-to-reach” due to business size (generally fewer than 10 employees), building ownership status (leasing) and in many cases language barriers. The large majority of current LightWash customers qualify as “hard-to-reach.” Not only do most of the participants qualify officially as “hard-to-reach”, it should be noted that the customers of these participants are quite often moderate to low income consumers, who pay into the PGC fund, but often enjoy little access to PGC program offerings. The LightWash program works to promote washers and supporting technologies that serve to contain utility costs that inevitably would be passed along to these consumers. At the same time, they enjoy the highest quality washers that otherwise might not be made available for their use.

## □ **Ability to Overcome Market Barriers**

While over 100 models of high efficiency commercial washers are available, the demand for them is constrained by several barriers.<sup>2</sup> The most significant market barriers affecting these market actors, and the solutions provided by LightWash, are described below:

### **Higher incremental equipment costs/Lack of financing for Energy Efficiency**

Incremental equipment costs for efficient washers from different manufacturers range from \$100 to \$700. While net benefits are significant and paybacks short, first costs are substantial. In large part due to recent utility cost increases, especially for natural gas, the coin laundry industry (Laundromats) in particular has been very hard hit. According to industry representatives, these business owners typically lack significant cash reserves and financing options are limited. The coin laundry industry is hard-pressed to fully pass these excess utility costs on to customers-typically low and moderate-income families--many of whom are themselves struggling in the weak economy. Incentives for high efficiency commercial washers, lighting, and instantaneous water heater boilers eliminates or substantially mitigates the first cost issues, freeing up the customer to make the most economically rational intermediate and long term decisions

### **Lack of information about energy/water efficiency benefits and data**

Vendors provide the primary source of information on laundry equipment options. The largest commercial washer market segment is the route operator industry. “Route operators” manage a majority (58 percent) of multi-family common area facilities. These vendors

---

<sup>2</sup> Most but perhaps not all products listed on the new Energy Star® qualifying product list would qualify under the LightWash program.



provide laundry equipment, maintenance services, and even rent payments in trade for space in common area laundries.<sup>3</sup> Under this type of arrangement, the actual purchaser/owner of the equipment (the route operator) does not pay the utility bills. Given the high first cost of high efficiency washers, the difficulty of “selling” a new technology to customers, and the difficulty in selling a smaller share of the vending proceeds to the property (to compensate the route operator for higher equipment costs), many route operators are not interested in promoting high efficiency washers to their customers—it is frustratingly rational.

Thus, a large number of customers, who have a million other concerns in operating multi-housing properties and outsource their laundry operations to route operators because they do not want to deal with laundry room issues, often never hear about efficient commercial washers. Substantive incentives (whether provided to the customer or the route operator) facilitate greater route operator involvement by addressing the first costs issues and provide credibility to claims made about more efficient washers and the savings that will result, which enables property owners to be sold on lower shares of the vending proceeds.

#### **Split incentives between property managers/owners and renters**

Lease-related split incentives between coin laundry stores and their landlords with respect to lighting systems are severe and are exacerbated by rapid ownership turnover in the very small business sector. Renters are not keen to improve the lighting systems of their rented space, since they foot the bill but the improvement immediately becomes the property of the landlord. Renters within a few years of the end of their leases are not going to be interested in longer-term savings that may not accrue to them. LightWash experience to date indicates that many coin laundry store owners would literally not pay more than \$100 for an entire system retrofit that would increase their lighting quality and cut their energy bills by 20 percent! Thus, the split is not only financial, but also philosophical. LightWash addresses these barriers by making the lighting retrofit virtually risk-free, low or no cost, and non-time consuming. Furthermore, the Program takes time to educate these business owners about the opportunities from efficient lighting and why it is in their interest to upgrade regardless of whom ultimately owns the equipment.

#### **Lack of availability of High-Efficiency Products**

At the beginning of the 2002-2003 program, there were problems with the selection of qualifying products in that several significant manufacturers/brands were not offering qualifying products. Over the last year, that picture has changed with two additional well-known manufacturers joining the program.

#### **□ Innovation**

The LightWash program proposes to continue its innovative collaboration with local water utilities. Perhaps one of the most innovative aspects is the flexibility to structure different partnership arrangements with each water utility in a way not seen from past PGC funded programs—IOU or otherwise. While seamless consolidation from the perspective of customers is what LightWash strives for, the behind the scenes interaction with the water utilities allows the Program to acknowledge and build on local strengths, existing programs, and market presence in each local service area.

---

<sup>3</sup> “Statewide Survey of Multi-Family Common Area Building Owners Market”, Volume 1, ADM Associates, 2000, page 5-5 (A CALMAC study)

**□ Coordination with Programs Run by Other Entities**

LightWash coordination with other program occurs to a great degree at two levels of the Program. At the macro level, the very essence of LightWash is coordination with other program entities-water utilities. In fact, LightWash leverages local government funds to effectively triple PGC-funded rebates. Thus, LightWash is a highly coordinated group of local program entities that enjoy the synergies resulting from consolidated infrastructure and outreach. In terms of partnering with other PGC funded programs, LightWash has and will continue to coordinate with a variety of local and statewide programs, including the Efficiency Partnership (statewide marketing). Please see section II B for an extensive discussion of past coordination in the 2002-2003 program. We expect to continue with these efforts if LightWash is reauthorized.

**□ Quality and Viability of Program Design**

LightWash is a proven program design. By consolidating resource-intensive activities, LightWash removes a substantial local water utility cost and staff resource barrier, thereby facilitating the involvement of more California water utilities. The Program’s established relationships with trade allies and direct experience with our customer base, has put LightWash’s finger on the pulse of the market, so that we can hit the ground running in 2004-2005. During the next two program years, we can leverage PGC funded infrastructure investments and brand identity, making LightWash even better positioned to succeed than it was in 2002-2003. Continuation of the LightWash program will allow the Commission to further exploit the PGC funded investments made during the 2002-2003 funding cycle.

Consistent with the Energy Efficiency Policy Manual Version 2, the LightWash program is structured almost exclusively to “require permanent replacement of energy-using equipment with more efficient models.”<sup>4</sup> Thus, this LightWash reauthorization program proposal is primarily an incentive and hardware program and is recommended for consideration by the Commission as such. The program implementer, Energy Solutions, complies with local, state, and federal laws, and has the appropriate licenses to perform the proposed work.

**C. Program Objectives**

The LightWash program proposes to deliver the following savings and benefits to the State of California. More detail on these values can be found in the accompanying workbook and also in section IV, below.

**Table 3. Projected Program Achievements**

	Units	Net Life Cycle Savings (kWh)	Net Life Cycle Savings (Therms)	Net Peak Demand Reduction (kW)
Washers	2,300 Washers	7,074,000	1,144,500	92
Lighting	200 GCP kW*	20,386,000	N/A	192
Boilers	32,000 Mbtu	N/A	3,005,000	N/A

\* GCP means gross coincidental peak demand reductions

<sup>4</sup> Energy Efficiency Policy Manual Version 2, California Public Utilities Commission, Energy Division, August 2003, pg. 10

## II. Program Process

### A. Program Implementation

The following scope of work describes the implementation activities in detail and provides deliverables and due dates.

#### ***Task 1: Program Development, Implementation, and Management***

Under Task 1, the LightWash team will handle overall program development and administration including fiscal management and compliance with the Program’s Policies and Procedures Manual, Commission policies and directives, and applicable laws and regulations.

#### **Task 1.1: Implementation Planning**

Following execution of the IOU administrator contract, the team will finalize any outstanding program design issues and develop the Program Specific Report, which includes:

Laundromat Lighting Retrofit element

- Lighting System Installation Standards,
- Lighting Product Specifications,
- Vendor Procedures Manual, and
- Quality Assurance Procedures.

Commercial Washer and Laundromat Instantaneous water heater boiler Rebate element

- Quality Assurance Procedures,
- Internal Policy and Procedures, and
- External Policy and Procedures Manual.

These implementation documents will further describe the activities outlined in this proposal and will clarify issues regarding program strategies and objectives that may come up between the time of Commission approval and program kick-off. The report will also describe data tracking and reporting methods. The Policy and Procedures Manual will define appropriate policies and procedures for interactions between the program staff and the water agencies and customer participants, and outline protocols for responding to customer complaints.

Deliverable 1.1.1: Program Specific Report.

Due Date for Deliverable 1.1.1: Within 14 days following execution of the IOU contract.

Deliverable 1.1.2: Other implementation documents including “Brief Program Description for Marketing Materials, LIEE/CARE Coordination Plan,” etc., as may be required by the Commission.

Due Date for Deliverable 1.1.2: to be determined by final “2004-5 Agreement for Non-Utility Energy Efficiency Implementers”

## **Task 1.2. Program Management and Administration**

Also included under Task 1 is general program management and administration, including program reporting. Energy Solutions will provide the Commission with “Monthly Reports” and the “Final Report” as set forth in the Energy Efficiency Policy Manual and IOU contract. The reports will include summaries of significant program achievements, efforts underway, new opportunities identified, analyses of program progress relative to the Implementation Plan, and a summary of program expenditures. These reports, and other reports that may be specified by the Commission, will provide all of this data in a format defined by the Commission. This task includes LightWash’s coordination with participating water utilities, including recruitment, coordination of program implementation, and reporting.

Deliverables 1.2.1: Monthly Reports as directed.

Due Date for Deliverables 1.2.1: Monthly Reports provided within 21 days of the end of the month.

Deliverables 1.2.2: Final Report.

Due Date for Deliverables 1.2.2: Final Report provided by May 1, 2006.

## ***Task 2: Marketing***

### **Task 2.1: Marketing and Outreach Plan**

The project team will develop an updated overall Marketing and Outreach Plan to recruit program participants. The Plan will be informed by the lessons learned in the current program and will include a discussion of the targeted market segments and the key decision makers within those segments. Strategy will be divided into two basic components: mass-market approaches (advertising, direct mail, co-promotions, presentations, etc) to address the medium and small market actors and individual networking (calls, letters, drop-ins, etc.), which will be limited to targeting the biggest players in each market segment (e.g., very large multi-family property owners, large property managers, and large vendors and route operators). The Plan will address approaches for refining and updating mailing and contact lists used in the current program.

For the mass-marketing approach, the Marketing Plan will describe the proposed types of marketing materials, the proposed target audiences and the strategy for timing and frequency. The Plan will identify advertising strategies and possible trade journals for placements. Plans to leverage associations and organizations, including participating water agencies, to carry promotions, stories, or mentions will be included. A schedule will be developed for producing and implementing these materials and strategies.

For the targeted networking approach, the Plan will describe the strategies and associations that will be used to contact and network with the largest market players (e.g., large route operator companies) along with an estimated time line for the effort. Plans to continue to build on relationships with apartment associations and other organizations, including participating water agencies, to help with direct networking will be included. A schedule will be developed for implementing these materials and strategies.

Deliverable 2.1: Draft Final Marketing and Outreach Plan.

Due Date for Deliverable 2.1: Within eight weeks of a signed contract.

## **Task 2.2 Marketing Materials Development and Printing**

In accordance with the Marketing and Outreach Plan, the project team will update marketing materials such as program brochures and mailers for distribution to target audiences. Materials will promote the Program's services and raise awareness of the opportunities for, and benefits of, reducing clothes washer water and energy use and, in the case of Laundromats, the importance of lighting and boiler efficiency. Overall themes and a look and feel will be developed that allows continuity between all or most of the pieces. In a limited number of cases, LightWash will promote a local water agency commercial washer program rather than establishing a separate brand (LightWash) in those service areas. This will both reduce costs and minimize confusion for customers and industry.

Deliverable 2.2: Completed Marketing Materials.

Due Date for Deliverable 2.2: Within four weeks of an approved Marketing Plan for the first wave. (The approximate timing of subsequent materials will be established in the Marketing and Outreach Plan).

## **Task 2.3 Program Marketing and Outreach Implementation**

The project team will deploy the program outreach and marketing strategies and materials described in the two tasks above. Program outreach will leverage participating water agency promotions where possible. Large player networking will focus on the largest potential players and other influential market actors. Using market research on decision makers in these segments and our experience with these types of organizations in the current LightWash program, we can effectively target the right individuals within the prospective organizations, who care about energy/water issues, have some responsibility for those issues, and can be motivated to act as project champions.

Deliverable 2.3: Mailing lists used for mass-market tactics and contact logs for networking activities.

Due Date for Deliverable 2.2: Submitted as they occur with the next Monthly Report described in Task 4, below.

## ***Task 3: Operations, Processing and Verifications***

### **Task 3.1: Tracking**

Program staff will develop a Microsoft Access-based Tracking Database that organizes, stores, and analyzes required program participant data, deemed savings data, and contact information. This database is expected to closely resemble the database currently in use for the current LightWash program saving significantly on start-up costs. Program staff will update and maintain the Tracking Database as necessary to support Program operations. This will include regular back ups for data loss protection.

Deliverable 3.1: Program Tracking Database.

Due Date for Deliverable 3.1: Within four weeks of contract execution.

### **Task 3.2: Processing and Verification**

Prior to submitting washer/boiler rebate applications, participants will be directed to phone or email the program staff to verify availability of funds and confirm other program rules. The Program will

continue with a funding reservation system that “holds” incentives for a particular applicant for a 45-day period, after which it is released to the next participant in line. Program staff will maintain this reservation list as part of the Tracking Database.

The Program staff will receive and process participant applications. Data from the applications will be entered into the Program Tracking Database. Certain portions of this data will then be transmitted to participating water agencies for eligibility verification. Verification results from the water agencies will be integrated back into the database and the application will be processed for payment provided sufficient funds remain. The program will be available for as long as funds last in each participating water utility territory. In order to address customer dissatisfaction and equity concerns, should water utility funding run out earlier than PGC (energy) funding, LightWash will continue to issue the energy portion of the rebate as long as funding is available.

The Program will maintain a special bank account separate from Energy Solutions’ business account to manage incentive funding and track the deposits, payments, and balance for each water utility. In order to facilitate the maintenance of sufficient funds in the central program payment accounts, LightWash will provide regular account status reporting to our water utility partners.

Deliverable 3.2: As part of the “Monthly Report”, monthly program rebate activity and incentive payment reports will be provided.

Due Date for Deliverable 3.2: Submitted as part of the Monthly Reports described in Task 1.2.

#### ***Task 4: Evaluation, Measurement, and Verification (EM&V)***

##### **Task 4.1: EM&V Plan**

Under Task 4, the LightWash team will first hire and then, together with the selected EM&V contractor, develop a detailed EM&V Plan. This plan will provide a complete approach and outline of actions to be taken both by the team and the third party EM&V consultant hired by the IOU or the Commission (see section VI later in this proposal). The plan will help ensure that important baseline data is collected as the projects proceed so that transitory information is not lost. A key component of the EM&V effort is the Program Tracking Database. This Database, described under Task 3.1 above, will track all crucial EM&V data by participant project.

In addition, Energy Solutions proposes to select two firms to provide EM&V services for the program. Equipose Consulting has the expertise to conduct EM&V on the washer component of the Program. Quantum Consulting will perform EM&V on the lighting portion of the program.

Deliverables 4.1: Detailed EM&V Draft Plan.

Due Date for Deliverables 4.1: 30 days after EM&V contractor is selected and no later than 120 days after the IOU contract is executed.

##### **Task 4.2: EM&V Management and Support**

In accordance with the EM&V Plan, the Program team will collect and organize data throughout the project as directed in the EM&V Plan as well as manage and support the third party EM&V consultant in their work.

Deliverable 4.2: Data requests as needed by the EM&V contractor.

Due Date for Deliverables 4.2: Completed within one week of each data request.

### ***Coordination of Implementation with Other Energy Efficiency Programs***

We understand that the LightWash program services are one of a variety of energy efficiency opportunities available to its targeted end-use customers. Customers with whom the program comes into contact may benefit from other available programs that also aim to positively influence their energy-use practices. During PY 2002-2003, LightWash coordinated with a number of programs in order to help customers understand the full range of energy efficiency incentives available to them. The following are some key examples of actions take by LightWash to promote complimentary and competing programs in 2002-2003:

- Negotiated with the City of Davis Department of Public Works (the water utility) and the Davis Community Energy Efficiency Program, a CPUC local program, to divide up the potential market between the two local programs. The two programs shared customer leads with one another to ensure that customers did not “fall through the cracks”.
- After learning that the proposed 2003 Statewide Multifamily program for the first time included common area laundry rebates, LightWash provided PG&E with an analysis of the potential conflicts between the programs and options to minimize those conflicts. LightWash and PG&E jointly submitted a successful request to the Commission seeking changes to the LightWash program to better complement the new Multifamily program.
- Established formal coordination efforts with ICF’s Partnership for Energy Affordability in Multi-Family Housing project. Provided training materials and information about washers for ICF’s planned training sessions at workshops and trade shows for property managers, and for the financing clearinghouse.
- Several contacts with Ecology Action (Santa Cruz) RightLights Program resulted in a agreement where the two programs would market each others’ services, and would refer customers to whichever program offered superior services; also the two programs agreed to exchange web links. LightWash established web link to website for RightLights Program.
- While the IOUs did not encourage LightWash to distribute Express Efficiency program information to customers that weren’t eligible for LightWash incentives but would be for Express Efficiency, LightWash staff routinely directed customers to the IOUs to pursue that opportunity. Vendors appreciated learning about the IOU rebates from the LightWash staff for customers that could not participate in LightWash.

As we did in PY 2002-2003, LightWash staff will coordinate with complimentary energy efficiency programs. This will be accomplished through the following activities:

- LightWash will again contact competing program in an effort to coordinate how to best handle overlapping services and territories in such a way as to provide the highest benefit to consumers.
- The Program will again coordinate with complementary programs to leverage our marketing and outreach efforts.

### ***Distinctions Between LightWash and Statewide Program***

LightWash differs from statewide programs that offer similar incentives in two substantial ways, both of which result in a high level of participation from some of the most hard-to-reach customers.

Firstly, LightWash delivers an aggressive, targeted marketing campaign. Because LightWash is focused on a limited set of measures for discreet populations, we effectively target our marketing and outreach efforts at the right population at the right time. Secondly, LightWash offers turnkey services to our customers. Our small, skilled staff provides the individual attention necessary to not only reach and capture hard-to-reach market sectors, but to manage a complex program with dozens of water utility partners. The evidence is in our results: LightWash has received applications for over 3,896 commercial clothes washers to date, an order of magnitude higher than the statewide Express Efficiency program.

The lighting retrofit program is quite different in that it is a direct install program and covers the majority of the cost of the retrofits. The program also provides many project management and quality control services not provided by Express Efficiency. While the 2003 Express Efficiency Rebate Program provides rebates for instantaneous water heater boiler technology (with a thermal efficiency of greater than or equal to 84 percent), the LightWash Program proposes to provide a rebate for boilers with a far higher efficiency (greater than or equal to 95 percent). This innovative measure is an excellent fit for this high gas use market (Laundromats). The boiler element complements the statewide program by effectively creating an ultra high efficiency rebate tier for these cutting edge technologies.

## **B. Marketing Plan**

### ***Marketing Strategy***

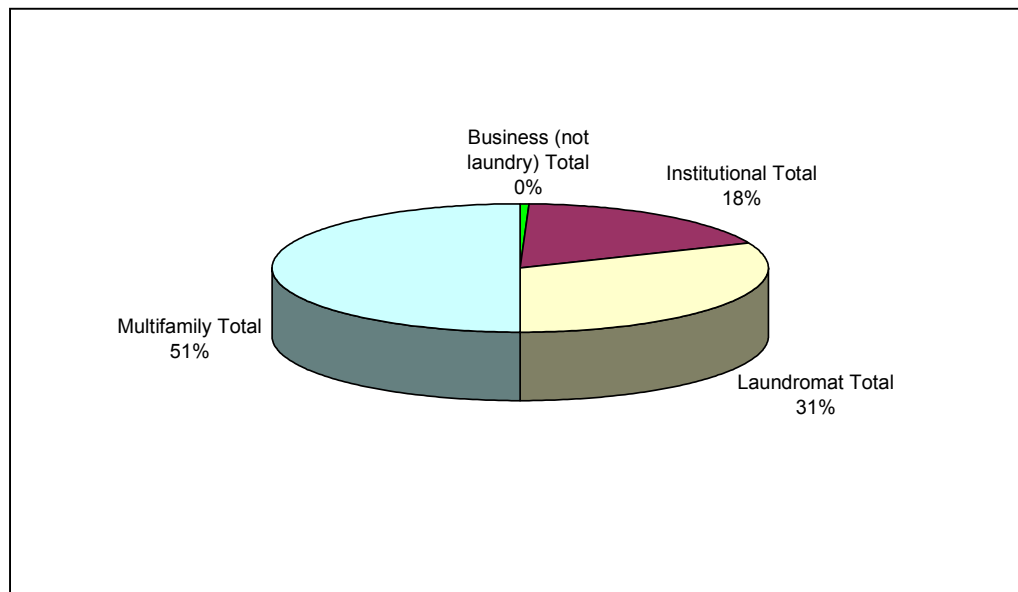
In 2004-2005, LightWash proposes to continue multi-pronged marketing to comprehensively address the barriers to greater market penetration of high efficiency commercial clothes washers and to promote comprehensive efficiency opportunities specific to Laundromats (boilers and lighting). Within the service territories of the participating water utilities, the Program will target the following eligible participants:

- Multi-family common area laundry owners/operators
- Laundromat owners/operators
- Businesses with on-premise commercial laundry equipment
- Institutional common area laundry owners/operators

Figure 1 shows the relative participation of various eligible applicants. Clearly, the multi-family sector represents the most significant participation in terms of number of applicants and washers installed. LightWash will continue to market to the multi-family sector via apartment association events and publications, clothes washer route operators and vendors. Laundromats will generally be targeted through coin laundry association events and publications, clothes washer vendors (since Laundromats tend to purchase washers, not lease) and boiler vendors, and site visits by our lighting incentive program staff. LightWash will market to institutions and businesses primarily via direct mail and select outreach calls.

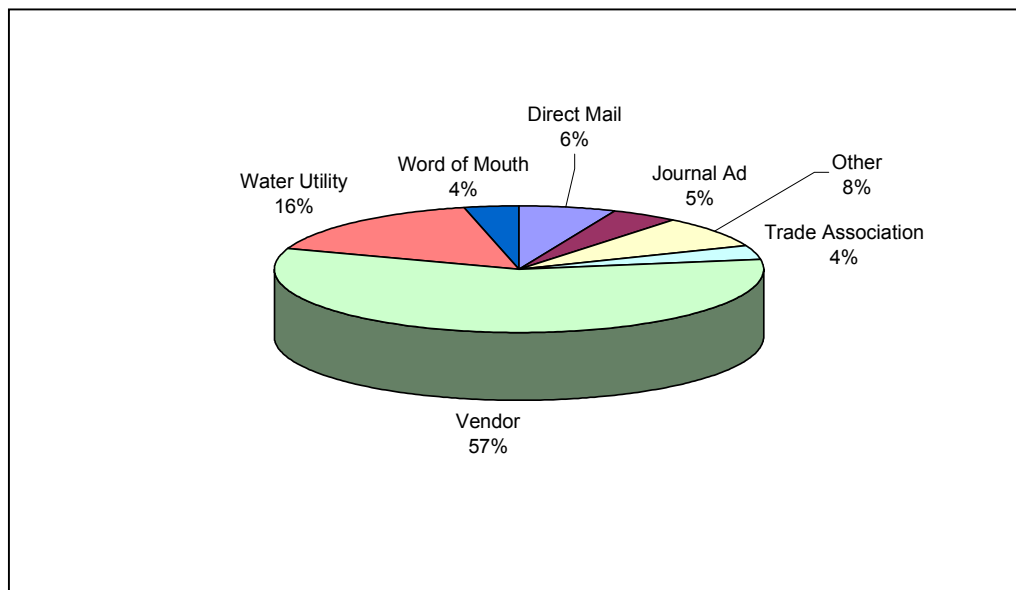


**Figure 1. LightWash Program Applications by Eligible Participant**



Source: LightWash program data as of August 2003

**Figure 2. LightWash Program Referral Source**



Source: LightWash program data as of August 2003, presented in terms of respondents [n = 192 (33% response rate)]

During PY 2002-2003, the vast majority of participants were referred to the program by their washing machine vendor (Figure 2); therefore, in 2004-2005 we plan to focus much of our marketing effort on vendor relations (phone calls, letter updates, etc.). Approval of the 2004-2005 program will allow LightWash to leverage and enhance these existing relationships at a relatively low cost. Because water utilities are also a prime avenue through which participants hear about LightWash, we will continue to leverage local promotional activities sponsored by water utility partners and assist them in developing LightWash bill stuffers, newsletter articles, and Web site links. Marketing materials will be designed for easy co-branding and distribution by water agencies.

Where possible, the program will leverage materials and marketing tactics implemented by water agencies. Water utility territory mailing lists from the existing program will be enhanced to provide a broad base for direct mail efforts.

LightWash will also continue to work with our existing industry association contacts. These partnerships enhance the program’s outreach efforts by leveraging each organization's credibility and familiarity to members. Meanwhile, the organizations themselves benefit, since the partnership helps demonstrate the advantages of membership in the association, and helps them accomplish their mission of bringing value and resources to their members. For instance, the Executive Director of the national Coin Laundry Association reported that many of their members are experiencing extreme economic hardship due to increased natural gas costs. He looks forward to promoting the benefits of the boiler replacement program as an added service to his members. As with the 2002-2003 program, LightWash will be working closely with participating lighting-vendors, who may provide additional Laundromat referrals to the LightWash program.

***Marketing Materials***

To compliment the activities listed above, LightWash will be producing a suite of marketing materials to promote and explain the program and benefits. Table 4 lists the estimated expenses associated with the materials we expect to use during the 2004-2005 Program. Materials are categorized according to the line items provided in the CPUC workbook and costs do not include placement and mailing costs. Where possible, LightWash will refine and reprint existing materials, making the marketing materials for the 2004-2005 program more cost-effective than those that would be developed under a brand new program.

**Table 4. Marketing Materials**

	Quantity	Distribution Methodology	Approximate Cost	Cost Methodology
Brochures (professionally printed materials)	12,500	Trade shows, trade allies, water utilities, site visits, “one-off” mailings	\$19,500	Experience from 2002-2003 program. Leverage existing materials.
Bill Inserts (generally printed in-house)	Approximately five	Water utility bills and communications	\$2,500	Experience from 2002-2003 program
Print Advertisements	6	Industry journals	\$3,000	Experience from 2002-2003 program
Web site	N/a	URL printed on all marketing materials	\$2,000	Assumes continuous updates

### ***Coordination of Marketing with Other Energy Efficiency Programs***

During PY 2002-2003, LightWash coordinated marketing efforts with range of PGC-funded energy efficiency incentives. The following are some key examples of actions take by LightWash to market complimentary and competing programs in 2002-2003:

- Developed an “other small commercial programs” summary table and “other multifamily programs” summary table that contained brief program descriptions and contact information for other PGC programs we believed were relevant to our targeted customers on the [www.lightwash.com](http://www.lightwash.com) Web site. Both were downloaded hundreds of times from our Web site.
- Included a statement that “...information on other PGC-funded energy efficiency programs can be found at [www.lightwash.com](http://www.lightwash.com)” on the LightWash program applications, which also required customers to sign a statement that they could not participate in other PGC-funded programs for the same measure.
- LightWash posted Web links (this is in addition to the program summary tables noted above) for the South Bay Energy Rewards program, ASW/Small Business Energy Alliance (Energy Savers Program), Geopraxis Energy Check up for Multifamily market, and others.
- Provided LightWash materials to the San Diego Regional Energy Office for display in their energy center.

As we did in PY 2002-2003, LightWash staff will coordinate with complimentary energy efficiency programs to leverage outreach efforts, as well as make available information regarding competing and complementary CPUC-funded programs to LightWash participants. This will be accomplished through the following activities:

- Provide information about competing and complementary programs on the LightWash Web site, and refer to the URL on our program applications.
- Provide materials to, and exchange Web links, with energy-efficiency information “clearinghouses”, as well as complementary programs.

### ***Coordination with Efficiency Partnership Statewide M&O Program***

LightWash will also leverage the Efficiency Partnership’s (EP) statewide marketing efforts. This will be accomplished by providing LightWash program details for inclusion in the Flex Your Power searchable database, distributing program information to large property owners and managers via the e-Newswire, and exploring ways to coordinate with the EP’s co-branded educational materials and advertising. In addition, because LightWash has already partnered with dozens of water utilities in the PG&E service territory to offer combined energy and water rebates, we look forward to cooperating with EP’s residential-focused retail promotion, “Save Water-Save Energy”. While EP helps energy and water utilities promote *in-unit* (residential) high efficiency washers, LightWash could work with EP to expand upon this effort by promoting existing LightWash clothes washer rebates for multi-family *common area* laundry facilities.

## **C. Customer Enrollment**

### ***Washer and Instantaneous Water Heater Boiler Rebate Program Enrollment Process***

Through marketing and outreach efforts described above, targeted customers and trade allies will be informed about the Program. Interested parties will be supplied with the rebate applications and lists of qualifying products. Eligible applicants will have the option of reserving rebate funds prior to installation of equipment. If so contacted, program staff will verify availability of funds and encourage participants to complete installations and submit applications expeditiously. Following installations, completed program applications will be submitted by customers and sent to the program administrative offices.

### ***Lighting Program Enrollment Process***

Through marketing and outreach efforts described above, targeted customers and trade allies will be informed about the program. Interested parties will be directed to contact the Program for more information about participating in the program. Program staff will set an appointment to meet with eligible participants to conduct a survey of their existing lighting systems. An access agreement will be executed by the customer when the audit is completed. A retrofitted lighting system is then designed to maximize energy savings while meeting all reasonable lighting needs as expressed by the customer and the recommended light levels as published by the Illuminating Engineering Society of North America (IESNA). Both the existing and recommended lighting design are then recorded and used to develop per measure and project specifics such as retrofit costs, energy and demand savings, and estimated simple paybacks. This information, which becomes the basis for the project installation, is presented to the Program participant, who at the same time is presented with the option to sign an applicant agreement and move forward with the project.

## **D. Materials**

### ***Commercial Washer Program Element***

For the commercial washer program element, LightWash is providing a post-installation rebate. The Program is not directly involved in procurement, delivery or installation of commercial clothes washers. Both to reduce PGC funded rebate amounts where feasible and to prepare the transition to the new state commercial washer standards taking effect in 2005, we have proposed a two-tier incentive in PY 2004. The Program proposes to continue using the same minimum qualifying specifications it did in the current program for the Calendar year 2004 for the lower level. That specification is a minimum modified energy factor (MEF) of 1.26 and a maximum water factor (WF) of 9.5. In 2005, however, a state standard takes effect that requires a 1.26 MEF, which, as noted, is the current program specification. Thus, in PY 2004 for level 2 and in PY 2005 as the only level, the LightWash specification will increase to a 1.8 MEF and a 7.5 WF. The WF is ramped up to benefit participating water utilities and because a state WF standard of 9.5 takes effect in 2007.

**Table 5. Product Qualifying Criteria**

Program Period	Minimum LightWash Specifications	Modified Energy Factor (cubic feet/kWh)	Water Factor (gallons/cubic foot)	Proposed PGC Rebate (not including Water Rebates)
PY 2004	Washer Level 1*	$\geq 1.26$	$\leq 9.5$	\$50
	Washer Level 2**	$\geq 1.8$	$\leq 7.5$	\$150
State Standard Takes Effect (MEF 1.26)				
PY 2005	Same as Level 2 above	$\geq 1.8$	$\leq 7.5$	\$100

\* This is the same as the current LightWash specification

\*\* LightWash Level 2 is equal to the Consortium for Energy Efficiency's Tier 4a, the second highest CEE tier for commercial clothes washers.

To assist participants in identifying qualifying washers, the program will develop a qualifying product list based on objective performance testing. The program proposes to continue using the Consortium for Energy Efficiency's Family Sized Commercial Washer Initiative product list (or portions thereof). If the customer meets the eligibility criteria and the installed equipment qualifies under the program, the applications will be processed. All offers are contingent upon available funding and funds will be reserved on a first come first served basis. Where rebate reservations are implemented, they will hold for a period and then will roll over to the next customer in line. Program applications must be received on or before December 31, 2005.

### ***Laundromat Instantaneous Water Heater Boiler Program***

For the boiler program element, LightWash is providing a post-installation rebate for instantaneous water heater boilers. This element of the Program is not directly involved in procurement, delivery or installation of boilers. The Program proposes to make rebates available to Laundromat owners who purchase and install these types of boilers with a thermal efficiency greater than or equal to 95 percent. While the 2003 Express Efficiency Rebate Program provides rebates for this technology (with a thermal efficiency of greater than or equal to 84 percent), the LightWash Program proposes to provide a rebate for boilers with a far higher efficiency (greater than or equal to 95 percent). This innovative measure is an excellent fit for this high gas use market. The boiler element complements the statewide program by effectively creating an ultra high efficiency rebate tier for these cutting edge technologies.

To assist participants in identifying qualifying boilers, the program will develop a qualifying product list based on objective performance testing. If the customer meets the eligibility criteria and the installed equipment qualifies under the program, the applications will be processed. All offers are contingent upon available funding and funds will be reserved on a first come first served basis. Where rebate reservations are implemented, they will hold for a period and then will roll over to the next customer in line. Program applications must be received on or before December 31, 2005.

### ***Laundromat Lighting Retrofit Program Element***

The Lighting element will be conducted in essentially the same manner as this approach has worked well in the current LightWash program. Experienced, small commercial lighting program staff will continue to conduct audits and provide retrofit design recommendations for installation by the LightWash- approved lighting contractors. The customer will pay only a portion of the lighting retrofit with incentives paid to contractors covering the difference. The program will rely on a select group of experienced lighting contractors that have agreed to specified program protocols and fixed measure pricing. The lighting retrofit program saves the Laundromat owner/manager from many of the risks and time commitments associated with technical decisions, vendor screening, soliciting and reviewing bids, and quality control.

The LightWash staff performs a survey of the existing lighting systems for participating Laundromats. A new lighting system is then designed to maximize energy savings while meeting all reasonable lighting needs as expressed by the customer and the recommended light levels as published by the Illuminating Engineering Society of North America (IESNA). Both the existing and recommended lighting design are then recorded and used to develop per measure and project specifics such as retrofit costs, energy and demand savings, and estimated simple paybacks. This information is presented to the program participant and becomes the basis for the project installation.

The installations of the designed lighting systems are performed by independent lighting companies that have agreed to both fixed unit pricing and written LightWash program installation standards. Installation standards ensure that quality products carrying typical warranties for given measures are used when completing the project installation; promote improved light quality or, at a minimum, maintain the current or appropriate level; establish an expected level of conduct for the vendors while on the project site; and, help ensure that expected energy savings are realized. These goals are met by specifically defining otherwise ambiguous lighting terms and setting minimum expectations. The installation standards are put in place to protect program participants, the installing vendor, and the Program itself.

Post-installation inspections are performed by LightWash staff to protect the customer from any communication errors between the Program and the installing vendor. It ensures that the proper equipment was installed and the installation standards were followed. It is also a final confirmation that the expected lighting results were achieved prior to vendor payment.

### **E. Payment of Incentives**

#### ***Process for Payment of Washer and Instantaneous Water Heater Boiler Incentives to Customers***

To achieve economies of scale, program staff on behalf of most participating water agencies will handle central application processing. The program will continue to offer the fund reservation system to address funding availability from participating water agencies and for other implementation reasons. The Program team will establish application handling procedures, a tracking database, and quality control protocols. The general approach will allow the Program administrator to pay both the energy and water incentives at the same time.

Participant applications will be entered as they are received into a program-tracking database and requests will be batched to water agencies for account and eligibility verification. Water agencies will transmit back approvals and the program staff will then direct site inspection scheduling where appropriate. Water agencies will maintain sufficient funds in a separate account managed by LightWash from which the program can draw down funds for incentive payments on an as-needed basis.

Rebate amounts vary depending on the efficiency of the washer (two tiers in 2004, only) and on the amount approved by each individual water utility. Program wide, the combined energy and water rebates are expected to average \$300, but actual incentive amounts will be determined by water utility decisions made at the beginning of the new program. The final determination as to which stakeholders (e.g. property owners versus route operators) are eligible to receive rebates will be made in coordination with the participating water agencies and in response to market dynamics.

The rebate payment process for instantaneous water heater boilers will be similar to the washer payment process except it will be unnecessary to coordinate with the water utilities staff. Program staff or water agency staff (arrangements will vary by water agency) will conduct site inspections for some installations. A small, generally random sample of installations will be selected for inspections prior to authorizing rebate payments. Large installations and installations with unusual circumstances are, however, more likely to be inspected to protect ratepayer funds. Following verification, the program will generate checks to the designated recipients. The program will use PGC gas and electric funds to match and leverage locally available water agency incentive funds. Communications protocols for incentive processing will ensure that customers are clear that both local water utility and PGC funds contributed to the incentive. Participants will sign a form indicating that they understand the source of the funds and will not double-dip into another PGC-funded program.

The incentives will generally be paid within four weeks or within such time frame as may be established by the local water agency. Rapid incentive payments are important to the success of the program. Please note that LightWash will continue to operate under the same arrangement with Santa Clara Valley Water District (SCVWD) as it has during the current program year. Under this arrangement, SCVWD, which has a well-established commercial washer rebate program on behalf of its retail utilities, manages most of the customer interaction.<sup>5</sup>

### ***Process for Payment of Lighting Incentives***

Professional lighting companies that have agreed to perform installations at fixed unit prices in exchange for receiving qualified job leads will perform the installation of the newly designed lighting systems. By establishing up-front unit pricing for over 80 lighting retrofit combinations, the program avoids a costly per-job bidding process that would otherwise drive up job costs and create a prohibitively expensive program environment. Competitive unit prices that are comparable to prices typically reserved for large-scale lighting projects were successfully negotiated for the East San Francisco Bay Area Brighter Businesses Program that occurred in the fall of 2001, the

---

<sup>5</sup> For SCVWD customers, LightWash will collaborate with the existing SCVWD rebate program--LightWash co-promotes that program in its program literature, advertising and outreach. Customers interact with SCVWD directly with LightWash staff co-process the applications and payment to SCVWD.

LightWash Program 2002-2003, and Stockton’s Brighter Businesses program in 2002-2003. The unit price list is based on an equipment specification that guarantees installation of high quality energy efficient equipment by carefully specifying all key performance criteria. For example, the program requires that contractors use “second generation” 800 series T8 lamps, rather than the older 700 series lamps.

Upon completion of installations, LightWash staff conducts a site inspection to ensure proper completion of the job and obtains customer sign-off. The contractor is notified when the inspection is completed and is expected to submit an invoice to LightWash. The LightWash program then writes an incentive check to the contractor for all but the agreed upon customer co-payment, if any. While the LightWash staff often brings the customer’s check to the contractor as a courtesy, the contractor is responsible for collecting any co-payments from the customer. The contractor will be paid within four weeks of the LightWash inspection. Rapid payment is essential to free up capital for the contractor to use on their next job.

## F. Staff and Subcontractor Responsibilities

Energy Solutions staff alone is responsible for all aspects of the development and implementation of the proposed LightWash program in 2004 and 2005. We do not anticipate at this time the need for substantive contributions by subcontractors and therefore do not propose any at this time. Energy Solutions will handle overall program operations, marketing and administration including fiscal management and compliance with the Program’s Policies and Procedures Manual, Commission policies and directives, and applicable laws and regulations. Energy Solutions will coordinate with the participating water agencies first in the development of the program, including recruitment of additional water agencies, and then in coordinating program implementation and reporting. In-kind and other contributions by participating water utilities toward the promotion of the program in their service territories is encouraged but not required.

The LightWash program staff assignments are shown in the table below. Additional Energy Solutions staff may be called on to contribute to completion of the program on time and on budget.

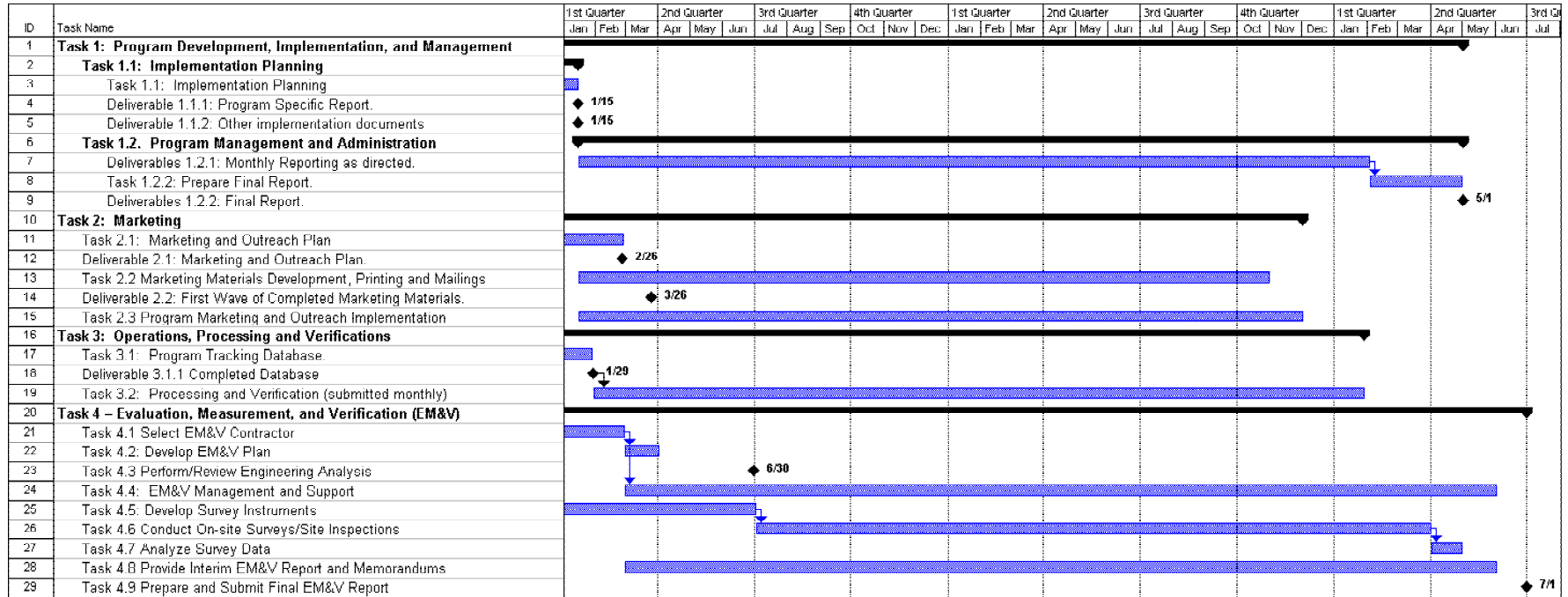
**Table 6. LightWash Management Staff Assignments**

Name	Program Title	Time Allocation*	Primary Duties
Ted Pope	Program Director	15%	Team management, project oversight, water utility recruitment, liaison with IOU administrator and CPUC representative, EM&V oversight
Erika Walther	Program Manager	60%	Program development, operations management, marketing management
Bruce Chamberlain	Lighting Program and Instantaneous water heater boiler Lead	30%	Overall responsibility for lighting program and instantaneous water heater boiler promotion, including sales, vendor coordination, quality control
Jennifer Fox	Marketing Lead	20%	Marketing and outreach implementation
Robyn Beavers	Operations Lead	30%	Rebate processing, water utility communications, and marketing activities

\* Percentage refers to approximate proportion of each program management level staff person’s day that is allocated to this project on average. Thus percentages add up to more than 100%.



## G. Work Plan and Timeline for Program Implementation



### III. Customer Description

#### A. Customer Description

##### **Clothes Washer Element**

The program targets the following market segments listed below in order of importance. Size, market actors, and “hard-to-reach” status are also defined. The secondary segments will receive only limited customized outreach. University housing, however, is the one sub-segment of the secondary group that will receive some specific attention.

##### *Primary Segments*

1. Multi-family (2+ units) properties with common area laundries, with emphasis on 10 unit properties and up. Both owners and properties managers are equally targeted. All are classified as hard-to-reach due to housing type.
2. Laundromats--any size. Both owners and operators are targeted. Most are classified as hard-to-reach based on building ownership, fewer than 10 employees, and/or language barriers.

##### *Secondary Segments*

3. Institutions, schools, and government (military) housing with common area laundry facilities—any size. Generally, facilities managers are targeted. This segment is generally not hard-to-reach.
4. Businesses with “on premise” laundries—any size. Owners and facilities managers are targeted. Examples are health clubs, beauty salons, small motels, etc. In many cases these customers may qualify as hard-to-reach based on building ownership, fewer than 10 employees, and/or language barriers.

As is shown in the “Geographic” section below, the program currently serves both urban and rural areas. It is our expectation that much of the addition of new local water utility participation will occur in more rural locations. A significant proportion of program volume in the current program is occurring in transmission constrained areas including Santa Clara County, City of San Francisco and other parts of the San Francisco Peninsula. Future water utility partners may also be in constrained areas.

##### **Lighting Incentives and Boiler Rebates Element**

##### *Primary Segments*

1. Laundromats--any size. For lighting retrofits and instantaneous water heater boiler rebates, both owners and operators are targeted. Most Laundromats are classified as hard-to-reach based on building ownership, fewer than 10 employees, and/or language barriers.

##### *Secondary Segments*

2. As in the case of the current LightWash program, where a Laundromat that rents its space participates, LightWash may offer the lighting to other small and very small businesses renting space under the same roof as the participating Laundromat.

## **B. Customer Eligibility**

### **Clothes Washer Program Element**

For the commercial clothes washer element, except for residential single family customers, any gas and/or electric customer of PG&E who is also a water utility customer of a participating water organization may be eligible as long as a qualifying washer is installed in their Laundromat, other business, government or institution building, group housing facility, or multi-family common area laundry space. Customers installing qualifying washers in residential, single family buildings are not eligible to participate, unless the building is operating under a license as a group housing facility. To qualify as a residential multi-family common area, the common area must be accessible at reasonable hours of the day for use by two or more households. There is no maximum building size limit for participation in the washer element.

### **Laundromat Program Elements**

#### **Lighting**

For the Laundromat Lighting Retrofit and Boiler elements, any Laundromats that are electric customers of PG&E that are within approximately 100 driving miles of Oakland-- or are in a participating water utility territory outside that radius and are participating in the washer rebate program element, and can be cost-effectively bundled with other customers in that location-- are eligible to participate. We have asserted these limits to balance containment of program delivery cost while maximizing benefits. In order to serve hard-to-reach customers better and to maximize cost efficiencies, when a Laundromat that leases its space participates in the program, other small businesses that lease space under the same roof as the participating Laundromat may also participate in the lighting retrofit element.

#### **Boilers**

For the Instantaneous water heater boiler Rebate Element, all Laundromats (new and existing construction) that are natural gas customers of PG&E are eligible.

## **C. Customer Complaint Resolution**

There have been no customer complaints in the LightWash program to date, however, in the event that the Customer has any questions, complaints or disputes regarding the LightWash program, the LightWash program representative will attempt to answer and resolve the customer's questions or complaints within a reasonable timeframe (typically within five business days.) In the event that the Customer believes his/her questions or complaints have not been satisfactorily answered or resolved, the Customer will be referred to the Energy Solutions LightWash Program Manager. The Customer shall then be requested to state in writing the date, time, exact location, persons involved, specific nature of complaints, amount of any loss, and any other information relevant to the complaint, and deliver the complaint to the Program Manager for consideration. The Program Manager shall investigate the claim and make a determination of the final disposition of the

complaint within ten business days. When communicating this resolution to the customer, the Program Manager will inform the Customer in writing of the option to appeal the decision to the IOU and, if still not satisfied, to the CPUC’s Energy Division.

*Appealing Complaints to the IOU Program Manager:* Either the Program Manager or the Customer may send a complaint to the IOU. If the Program Manager cannot adequately resolve the conflict s/he shall notify the IOU program manager within 10 business days of receiving the written complaint from the customer. If the Customer wishes to appeal a decision by the Program Manager, s/he will have 5 business days from notification by the Program Manager to submit a written appeal to the IOU program manager. The IOU program manager will have 10 business days to recommend a solution to the issue, and will refer the claim to the Program Manager for final resolution. The Program Manager, in communicating this resolution, will inform the Customer in writing of the option to appeal the decision to the CPUC’s Energy Division. If the Customer is not satisfied with the complaint resolution, s/he will have 10 working days to submit a written appeal to a contact person at the CPUC’s Energy Division. The CPUC’s contact person shall make a determination of the final disposition of the complaint within 20 business days. This determination will be final. If the LightWash Program team is determined to be at fault, claims shall be remedied within ten normal business days of final resolution, unless approval for another timeframe is given. The Program Manager shall maintain a log of all customer complaints received and shall retain that log for at least three years after the end of the contract term. The Program Manager shall record notice of receipt of complaint and the resolution status in the Quarterly Reports. The Program Manager shall have a copy of the written complaint, along with copies of all written communications including resolutions, for inspection by request.

## D. Geographic Area

The Program is currently providing washer rebates in the following locations in conjunction with the local water utilities. Virtually all those listed below have expressed firm interest in participating in the next round of LightWash. Thus, LightWash anticipates continuing operations in the service territories of participating water agencies listed below as well as expanding into additional water utility service areas.

### San Francisco Peninsula [transmission constrained areas]

City of Millbrae	Redwood City	San Francisco Public Utilities Commission
Santa Clara Valley Water District, including the following retailers:		
Great Oaks Water Company	City of Gilroy	City of Milpitas
City of Morgan Hill	City of MountainView	Purissima Hills Water District
San Jose Municipal Water System	San Jose Water Company	City of Sunnyvale

Much of this San Francisco Peninsula region is considered to be a transmission constrained location according to the April 11, 1003 California ISO 1003 Summer Assessment.

**Other Areas**

<b>East Bay</b>	<b>North Bay</b>	<b>Central Valley</b>	<b>South Bay</b>
Alameda County WD	City of Cotati	City of Davis	San Benito County
Contra Costa Water District	Marin Municipal Water District	City of Manteca	Santa Cruz Water Department
East Bay Municipal Utility District	City of Santa Rosa		Soquel Creek Water District
	Valley of the Moon		

**Future Locations**

LightWash has been actively engaged in recruiting water districts in the Central Valley. California Water Services Company has expressed preliminary interest in 2004-2005 on behalf of its Salinas, Stockton and Livermore water divisions. Additionally, water utilities in Sacramento, and Napa Counties have indicated intent to participate in the current LightWash program but have not been able to follow through as of yet. Generally, we anticipate that most of the growth in program service area will occur not in the Bay Area but rather to the north, east and south of the immediate Bay Area.

## IV. Measure and Activity Descriptions

### A. Energy Savings Assumptions

Tables 7 and 8 below summarize the savings projected from the continuation of the LightWash program in the PG&E service territory.

**Table 7. Per Unit Energy Saving Assumptions**

Measure	Gross Coincident Peak Demand Reduction (kW)	Electric Energy Savings (kWh)	Gas Energy Savings (therms)	Water Savings (gallons)	Energy “embedded” in Water * (kWh)	Incremental Measure Cost (\$)
Com. Clothes Washer 2004	.0580	340	70.0	21,000	70	\$(210)/ \$45
Com. Clothes Washers 2005	.0166	97	23.8	24,400	81	\$(3)
Laundromat Lighting Systems Retrofit	1.00	6,636	N/A	N/A	N/A	\$1,367
Laundromat Instantaneous Water Heater Boiler	N/A	N/A	6.26	N/A	N/A	\$9.81

\*These savings are not experienced by the customer but do reduce energy use in the region.

**Table 8. Total Program Net Savings Impacts**

Measure	EUL	Unit Goals	Net to Gross Ratio	Total Net Therm Savings (therms)	Total Net Electricity Savings (kWh)	Total Net Demand Reduction (kW)	Total Net Water Savings (gallons)
Com. Clothes Washer 2004	10	1,400	0.96	940,800	5,523,800	78	200 Million
Com. Clothes Washers 2005	10	900	0.96	203,700	1,537,900	14	211 million
Laundromat Lighting Systems Retrofit	16	200	0.96	N/A	20,385,800	192	N/A
Laundromat Instantaneous WH Boiler	15	32,000	1.0	3,004,800	N/A	N/A	N/A

Since most of the values relating to cost-effectiveness shown above cannot be sourced directly from the Policy Manual or CEC's DEER database, we present and justify all key variables shown in the two tables above in Section B below.

## **B. Deviations in Standard Cost-effectiveness Values**

### ***Commercial Clothes Washer Savings, Sources and Calculation Methodologies:***

#### **Commercial Washers 2004**

##### **Electricity, Therm, and kW Variables**

The savings impacts from commercial clothes washers purchased in 2004 are supported by official deemed savings values from the California Energy Commission's Appliance Efficiency Regulations and were approved for use in the 2002-2003 LightWash program.<sup>6</sup> Thus, these are the same per unit savings assumptions in use by the 2002/2003 LightWash program, with the exception of "embedded" energy, which was left out in 2002/2003 because it confounded the Participant Test calculators built into the Commission PIP workbook. While we have separated the PY2004 washer rebates into two levels to address incremental cost issues addressed below, we maintain consistent savings across both levels. Insufficient data is available to parse the savings values between the two levels and the average result is expected to be the same as the value used for both. Given the already high Participant Test score for this proposal, we include embedded energy savings (which accrue only to water utilities and the state) here with the acknowledgment that inclusion slightly increases the Participant Test scores, inappropriately. In that way these important savings can be accounted for in the TRC test. Please note, however, that we have reduced the embedded energy savings by 40 percent to address the fact that the CEC numbers reflect statewide average embedded energy estimates, where as the typical embedded energy in Northern California is substantively lower primarily due to the preponderance of gravity flow water transportation infrastructure. In other words, there is more water pumping energy embedded in the average glass of Southern California water.

##### **EUL and Net-to-Gross Variables**

In 2004 and 2005, we use the EUL of 10 years provided in the Policy Manual though we note that it may overstate average lifetimes. We continue to use the Express Efficiency Net-to-Gross Ratio of 0.96 as shown in the Policy Manual because the LightWash post-sale rebate system is the same as that of Express Efficiency and because commercial washers are Express Efficiency measures. Water savings are also included due to their significance to water utility partners and the state generally and due to the energy "embedded" in the water/wastewater as it is pumped, treated, pressurized, distributed, and processed. Water savings are not, however, proposed as a specific goal. Also, water savings factor significantly into the estimation of incremental costs.

##### **Incremental Measure Costs**

For the 2002-2003 proposal, the incremental cost of high efficiency washers was based on cost data gathered from manufacturer Websites and literature and from data collected by Battelle from earlier

---

<sup>6</sup> 2001 Update, Assembly Bill 970 Appliance Efficiency Standards Life Cycle Cost Analysis Docket Number 01-AB970-APSTD, November 2001, P400-01-028

programs. The mid-point value of \$400 was used from a range of \$275 to \$700. This value matches with industry claims (Alliance Laundry Systems) during the AB970 rulemaking. Through experience with the 2002-2003 program, it has become clear that a single top loading washer model with a substantially smaller incremental cost and which was not expected to be a big seller has in fact achieved almost a 20 percent share of LightWash program participation. That single washer has been selling at an approximate incremental cost of \$100 to \$150. In the last two weeks, several similar products for one of the top two commercial washer manufacturers have hit the market with incremental costs in the range of \$50 to \$100. This product, too, is likely to be a big seller given its top loading configuration and lower cost. Given these changes in the market, we are revising PY 2004 Level 1 equipment incremental cost from \$400 down to \$100 for PY2004 (this explains in part the value of a two tier rebate structure). Please note that we use \$650 as the baseline cost in PY 2004, despite that fact that DEER shows \$776 as the baseline costs. Our cost information is based on the latest information from thousands of washers incented through LightWash. To arrive at the final incremental measure cost, we subtract the present value of water/wastewater savings from the incremental equipment cost. There appears to be no other way to account for these very real economic impacts to the customer without otherwise upsetting the workbook calculations. This approach was explained to Tim Drew at the Commission prior to submittal.

The average life cycle water and sewer savings were calculated assuming a conservative bill savings of \$2.50 per thousand gallons saved (the same value used in 2002-2003 proposal). This value is substantially lower than the statewide values of saved water reflected in the CEC analysis (\$3.50 per 1,000 gallons), because average water/wastewater rates in Northern California are lower than in Southern California. Incidentally, this lower figure is consistent with the DOE estimate for national water and wastewater costs. These savings were then discounted at 8.15 percent to arrive at a present value of water/wastewater savings. The gross incremental measure costs were then reduced by this present value. Average incremental measure costs are (\$210.35), \$44.86, (\$3.41) for PY 2004 Level 1, PY2004 Level 2, and PY2005, respectively. The Tables 9 through 11 below show the key values and the final incremental measure cost (incremental equipment cost less the water savings benefits) to the customer.

**Table 9. Incremental Equipment Cost Detail**

<b>Incremental Equipment Cost Table</b>			
<b>Measure Description</b>	<b>Baseline Cost*</b>	<b>Qualifying Product Cost**</b>	<b>Incremental Equipment Cost</b>
2004 Washer Level 1	\$ 650	\$ 750	\$ 100
2004 Washer Level 2	\$ 650	\$ 1,153	\$ 503
2005 Washer***	\$ 750	\$ 1,153	\$ 403

\*Conversations with industry representatives (DEER shows \$776, but we believe that is too high)  
 \*\*Average cost data collected from the LightWash 2002/2003 applications.  
 \*\*\* The new state energy standard takes effect in 2005 and is expected to result in increased baseline costs. We use the current Tier 1 costs to approximate the baseline costs in 2005



**Table 10. Water Savings Detail**

Water Savings Analysis									
Measure Description	Tub Capacity** (ft^3)	Water Factor Requirement (gal/ft^3)	Expected Water Factor (gal/ft^3)*	Water Use (gal/load)	Water Savings (gal/load)	Daily Loads	Annual Loads	Annual Water Savings (gal/year)	
Baseline 2004	2.7	N/A	12.7	34.3	N/A	4.5	1,643	N/A	
Baseline 2004	2.7	N/A	12.0	32.4	N/A	4.5	1,643	N/A	
2004 Washer Level 1	2.7	9.5	8.5	23.0	11.3	4.5	1,643	18,626	
2004 Washer Level 2	2.7	7.5	6.5	17.6	16.7	4.5	1,643	27,495	
2005 Washer	2.7	7.5	6.5	17.6	14.9	4.5	1,643	24,391	

\* Expected WF for 2004 baseline is the same as used in the previous LightWash and was based on a combination of measurement studies and market data. Expected WF for 2005 baseline was reduced to reflect improved water efficiencies that may accompany energy efficiencies required in 2005  
 Expected WF in 2004 Tier 1 is the average of the two models available in that category that are likely to dominate in terms of sales  
 Expected WF in 2004 Tier 2 and 2005 reflect the estimated average Water Factors for current products in the program at or above the prescribed minimum  
 \*\* Tub capacity appears to be higher for big selling qualifying products, but loads per year would drop correspondingly. Thus, we hold the size constant for si

**Table 11. Incremental Measure Cost Detail**

Incremental Measure Cost Calculation Table							
Measure Description	Incremental Equipment cost	Estimated Annual Water Savings (gallons)	Value of Water/Waste water Savings (\$/1,000 gal)	PV Factor Used	Annual Nominal Value of Water Savings	PV of Water Savings	Increm. Measure Cost incl Water Waste Savings
2004 Washer Level 1	\$ 100	18,626	\$ 2.50	8.15%	\$ 47	\$310.35	\$ (210.35)
2004 Washer Level 2	\$ 503	27,495	\$ 2.50	8.15%	\$ 69	\$458.14	\$ 44.86
2005 Washer	\$ 403	24,391	\$ 2.50	8.15%	\$ 61	\$406.41	\$ (3.41)

**Commercial Washers 2005**

**Electricity, Therm, and kW Variables**

For the PY 2005 washer rebate program, no deemed savings are known to be available because new, state energy efficiency standards for commercial washers take effect in 2005 and change the baseline assumptions now underlying the CEC’s deemed savings values. Please note that this state standard is not particularly aggressive and leaves significant energy savings available to warrant ongoing support for products that substantially exceed the standard.

The savings for washers PY 2005 has been calculated/extrapolated from U.S Department of Energy performance modeling data used in the establishment of the federal residential clothes washer standards taking effect in stages starting in 2004. Because the test procedures for residential and commercial washers are effectively the same and because commercial washers are not significantly different in the way they function, we believe it is appropriate to use the DOE values to estimate commercial washer savings. In fact, it is assumed that since commercial washer users are not generally paying for the cost of heated water (often fixed price per wash), they would be more likely to select warm or hot water wash cycles than would residential (in-home) users who must bear the cost of water heating. Thus, the DOE numbers could understate the proportion of hot water washes and therefore energy use and savings associated with the proposed specification.

**Figure3. Energy Savings Calculations for PY2005**

This is an analysis from DOE for the Residential Washer Standards Rulemaking Process Available From the DOE Web site											
Description	MEF	% Change over Baseline	ENERGY USE PER WASHER CYCLE					Water Use / Cycle		Total All Electric Scenario	
			MOTOR		HEATING ENERGY		DRYER ENERGY		Hot Water		Total Water
			Energy (kWh)	Elec WH (kWh)	Gas WH (MMBtu)	Elec Dryer (kWh)	Gas Dryer (MMBtu)	(gal)	(gal)		
Baseline (MEF=0.817)	.817	0%	0.209	1.587	0.0072	1.430	0.0055	8.82	39.18	3.226	
5% Impr. (MEF= 0.86)	.86	5%	0.209	1.543	0.0070	1.413	0.0054	8.57	38.61	3.165	
10% Impr. (MEF= 0.908)	.908	10%	0.209	1.408	0.0064	1.400	0.0054	7.82	38.61	3.017	
15% Impr. (MEF=0.961)	.961	15%	0.209	1.216	0.0055	1.407	0.0054	6.76	38.62	2.832	
20% Impr. (MEF=1.021)	1.021	20%	0.218	1.113	0.0051	1.408	0.0054	6.18	38.45	2.739	
25% Impr. (MEF=1.089)	1.089	25%	0.304	0.715	0.0033	1.273	0.0049	3.97	26.60	2.292	
35% Impr. (MEF=1.257)*	1.257	35%	0.133	0.462	0.0021	1.270	0.0049	2.57	21.03	1.865	
40% Impr. (MEF=1.362)	1.362	40%	0.133	0.462	0.0021	1.263	0.0048	2.57	21.03	1.858	
45% Impr. (MEF=1.485)	1.485	45%	0.114	0.429	0.0020	1.107	0.0042	2.38	23.41	1.650	
50% Impr. (MEF=1.634)	1.634	50%	0.114	0.413	0.0019	1.047	0.0040	2.29	23.41	1.574	
55% Impr.(MEF=1.801)**	1.801	55%	0.110	0.384	0.0017	0.950	0.0036			1.444	

\* The yellow highlighting shows the January 1, 2005 State MEF standard and serves as 2005 baseline  
 \*\* Values in black (above and to the left of the lightblue bars) are taken directly from the DOE analysis. Blue were estimated by LightWash on the basis of the DOE numbers

Proposed Level of 1.8 MEF provides the following savings

Impacts	Units	Formula
All Electric Scenario Savings Per cycle in kWh equivalents	0.421 kWh	[MEF 1.26 energy less MEF 1.8 or 1.865-1.444]
Gas dryer savings (91% market share)	0.011 Therms	[MEF 1.26 energy less MEF 1.8 or (.0049-.0036)*.91*10 therms per mmbtu]
Electric dryer savings (at 9% saturation)	0.029 kWh	[MEF 1.26 energy less MEF 1.8 or (1.27-0.950)*.09]
Gas water (91%)	0.003 Therms	[MEF 1.26 energy less MEF 1.8 or (.0021-.00.0017)*.91*10 therms per mmbtu]
Electric water heating (9%)	0.007 kWh	[MEF 1.26 energy less MEF 1.8 or (.462-.384)*.09]
Motor Controls	0.023 kWh	[MEF 1.26 energy less MEF 1.8 or .133-.110]

**Deemed Savings Final Calculations**

Per Unit/Per Load Deemed Savings	Per Unit/Year Deemed Savings
Therms/load	0.01436
kWh/load	0.059
Loads (turns) /year	1642.5
Therms/year	23.58
kWh/year	96.61

Using the future standard of 1.26 MEF as the baseline, the PY 2005 requirement (1.8 MEF -- CEE Tier 4a and 4b) will result in savings of almost 40 percent of the PY 2004 savings if “embedded”

energy associated with water savings is included. Embedded energy savings increase in PY 2005 because a more stringent water factor is also required, which results in greater water savings.

**EUL and Net-to-Gross Variables**

[Same as for Washers 2004]

**Incremental Measure Costs**

[See discussion under Washers PY 2004]. An incremental measure cost of (\$3.41) is used, which means that (after accounting for water savings benefits), the qualifying product has a slightly lower purchase price.

***Laundromat Boiler Retrofit Savings Sources and Calculation Methodology***

The energy savings are based on the following assumptions, calculations, and (sources):

Average sized laundromat with 36 top load washers (field estimate)

Average # of turns per day = 5 (Coin Laundry Association)

Gallons per load = 36 (industry estimate)

Baseline water temperature = 55 degrees F (industry estimate)

Desired hot water temperature = 120 degrees F (industry estimate)

Delta temperature = 65 degrees F (calculation)

Warm water = 50% of total gallons (1/2 cold and 1/2 hot) (industry estimate)

Hot water = 20% of total gallons (industry estimate)

Cold water = 30% of total gallons (industry estimate)

Btu demand = gallons hot water X 8.34 lbs per gal X delta T (standard formula)

Efficient unit -- 99% thermal efficiency = 95% seasonal efficiency (industry estimate)

Baseline unit -- 80% thermal efficiency = 67% seasonal efficiency (industry estimate)

**Table 12. Energy use associated with installation of instantaneous water heater boiler vs. standard boiler (400Mbtu capacity).**

	# of units	Turns/day	Gal/turn	Gal/day	50% warm (1/2 hot)	20% hot	30% cold	MBtu demand /day	MBtu needed per day	Annual MBtu	Annual Therms
	36	5	36	6480	1,620	1,296	1,944				
MBtu for 95%					878	703	N/A	1,581	1,664	599,025	5,990
MBtu for 80%					878	703	N/A	1,581	2,359	849,344	8,493

**EUL and Net-to-Gross Variables**

We will use the EUL of 15 years and a Net-to-Gross Ratio of 1.0 as provided in the Energy Efficiency Policy Manual.

### **Incremental Measure Costs**

The Incremental Measure Costs of \$9.81 per MBtu (200-500 MBtu, 82% thermal efficiency boilers) and \$21.00 (200-500 MBtu, 95% efficiency boilers) are from the 2001 DEER Update.

### ***Laundromat Lighting Retrofit Savings Sources and Calculation Methodology:***

As has worked well in the current LightWash program, the lighting retrofit element will continue to use gross coincident peak kW (GCP kW) reductions as its unit of achievement. The practically infinite variety of individual measure permutations associated with comprehensive small business retrofits requires this accurate, yet simplifying approach. Using GCP kW provides a more direct measure of progress toward the savings goal, rather than indirect measures such as square footage. Table 13 below provides a deemed savings table to translate retrofits into GCP kW savings (unit savings) and annual energy savings.

To calculate GCP kW, we use the connected load (nominal kW) and multiply by the 0.88 coincident diversity factor<sup>7</sup>. This coincident diversity factor is in fact conservative as that typical Laundromat lighting is generally expected to be in use through the entire peak period. In fact, annual operating hours are estimated at 5,840 in accordance with operational data (6:00 AM to 10:00 PM daily) provided by the national Coin Laundry Association ([www.coinlaundry.org](http://www.coinlaundry.org))

The lighting goals (expressed in terms of GPC kW reduction) are projected based on industry and market knowledge gained through experience with small commercial programs including LightWash. At an average of 1.1 peak kW savings per site, and 182 sites participating, the program will deliver 200 kW of savings. For Lighting, kWh savings are determined by multiplying the GCP kW reduction by operating hours and then dividing by 0.88 coincident demand factor. As with the previous LightWash program, a 16-year EUL for Lighting is used from CPUC Policy Manual.

The estimated average lighting project cost is \$1,367 per kW (subject to cost-effectiveness limitations). This estimate is based on experience with similar small business lighting retrofit programs including the Commission-funded 2001 Brighter Business Program. It combines estimated costs of \$2,500 to perform lamp-to-lamp projects (1/3 of jobs) and \$800 per kW for delamping projects (2/3 of jobs), which is the estimated mix of project retrofit types based on past experience in Brighter Businesses program.

As the Express Efficiency Lighting Net-to-Gross value is 0.96, we apply the same value, however, we are quite confident that this is conservative given the comprehensive nature of the LightWash lighting retrofits and the fact that most participants lease their space and, therefore in the absence of the program would not invest in the lighting system, which is owned by the landlord.

For the lighting retrofit component, we will utilize deemed savings calculations developed by IOUs as a starting point for the lighting retrofit deemed savings calculation. This data is primarily from the Express Efficiency (formerly Retrofit Express) program and has been verified through multiple, independently conducted measurement and evaluation studies that were approved in the past by the PUC. These studies have also generated the following data (all by business type): operating hours,

---

<sup>7</sup> Express Efficiency Program, November, 2000, Pacific Gas and Electric Company

load shape information for determining coincident (i.e., on peak) demand savings, and interactive effects from reduced air conditioning loads. Operating hours are based on industry data found on [www.coinlaundry.org](http://www.coinlaundry.org). All of this data will be included in the deemed savings calculation.

We should note that the IOUs’ standard savings numbers calculate demand interactive effects. In the table below, Energy Solutions has removed the interactive effects. This effectively decreases the deemed savings for each measure by 20 percent. Where small businesses do not use air conditioning, we will use these lower figures. Where participating small businesses located in significant air conditioning climates and are using air conditioning, we will use the higher IOU value. This conservative approach seems most appropriate given the lack of systematic study and the likelihood that interactive effects play an insignificant role in the small commercial sector in coastal climates.

To minimize program overhead and measurement and evaluation costs, we provide a table of lighting measures to be utilized in the proposed Program and their associated energy savings (shown below with interactive effects removed). We expect this list of standard measures to cover the majority of cases. In cases where additional measures are required, a new “measure code” will be created, backup engineering calculations will be performed, and savings characteristics entered in the database. Energy savings accurately reflect the assumed operating hours for the program. Savings from the program result from installation of a combination of lighting retrofit measures.

The values in the following table are based on the Retail sector with a coincident diversity factor of 0.88. Hours of operation (for Laundromats) are 5,840. Interactive effects are NOT included.

**Table 13. Deemed Savings for Lighting Measures**

Description (Item/Base Case)	Peak kW Savings	Energy Savings
Standard CFL: 5-13 watts / incandescent base case	0.040	263
Standard CFL: 14-26 watts / incandescent base case	0.050	333
Standard CFL: > 26 watts / incandescent base case	0.061	403
Delamping: 2-foot, T-12 lamp removal	0.028	187
Delamping: 3-foot, T-12 lamp removal	0.039	257
Delamping: 4-foot, T-12 lamp removal	0.038	251
Delamping: 8-foot, T-12 lamp removal	0.070	461
New Exit Sign / incandescent Base case	0.032	316
Retrofit Exit Sign / incandescent base case	0.032	316
Standard Fluor. Fixture: 5-13 watts / incandescent base case	0.040	263
Standard Fluor. Fixture: 14-26 watts / incandescent base case	0.065	432
Standard Fluor. Fixture: 27-65 watts / incandescent base case	0.125	829
Standard Fluor. Fixture: 66-90 watts / incandescent base case	0.190	1,261
Standard Fluor. Fixture: >90 watts / incandescent base case	0.338	2,243
HOT5: 36-70 watt HO T-5 lamp fixture / incandescent base case	0.212	1,407
HOT5: 101-175 watt HO T-5 lamp fixture / mercury vapor base case	0.152	1,010
HOT5 (234w)/ Metal Halide Base Case*	0.197	1,308
HID: 0-35 watts / incandescent base case	0.048	321
HID: 36-70 watts / incandescent base case	0.098	648
HID: 71-100 watts / mercury vapor base case	0.062	415
HID: 101-175 watts / mercury vapor base case	0.066	438

HID: 176-250 watts / mercury vapor base case (Warehouse)	0.140	929
HID: 251-400 watts / mercury vapor base case (Warehouse)	0.394	2,616
Wall- or ceiling-mounted occupancy sensor/ manual base case	0.268	1,781
Switch-mounted occupancy sensor / manual base case	0.078	520
Dedicated occupancy sensor for 4 lamp HOT5 fixture*	0.154	438
Premium T8 & ballast: 2-foot lamp / T12 & EE magnetic ballast base case	0.010	64
Premium T8 & ballast: 3-foot lamp / T12 & EE magnetic ballast base case	0.011	76
Premium T8 & ballast: 4-foot lamp / T12 & EE magnetic ballast base case	0.008	53
Premium T8 & ballast: 4-foot lamp / 40w T12 & EE magnetic ballast base	0.013	88
Premium T8 & ballast: 4-foot lamp / 40w T12 standard and magnetic ballast	0.017	111
Premium T8 lamp & HP ballast: 4foot 40 w EE	0.004	29
Premium T8 lamp & HP ballast: 4foot 40 w Standard magnetic ballast	0.008	53
Premium T8 lamp & HP ballast: 34 w T12 ee magnetic ballast	-0.003	-18
Premium T8 Low power ballast 4 foot T8 from 34w T12 & EE magnetic ballast base	0.011	70
Premium T8 Low Ballast 4 foot T8 System from 40 w T12 and EE magnetic	0.017	111
Premium T8 & ballast: 8-foot lamp / T12 & EE magnetic ballast base case	0.009	58
Premium T8 lamp and dimming ballast (with day lighting) / T12 & magnetic	0.011	76
High Performance 4 foot T8 System (from T12)	0.011	70
High Performance 4 foot T8 System (from T8)	0.004	29

Note: Interaction effects excluded from savings impacts listed in this table.

## C. Rebate Amounts

### *Clothes Washer Element*

The LightWash proposal proposes the rebate amounts shown in Table 14 below. We have proposed two rebate levels in 2004 for two reasons. First, a large differential in incremental costs is emerging between products meeting level 1 and those meeting level 2. Thus, the proposed rebate responds better to actual market prices and rewards investments in washers that are even more efficient than minimally required in the Program. Perhaps more importantly, the split-level approach allows for a more orderly migration to “new” specifications in 2005 (where level 1 products are dropped) that must be made to accommodate the new state standard that takes effect then. This split-level approach will help make that transition to 2005 understandable to customers and vendors. They will be on notice all year that products under level 1 are not going to be qualified in 2005. Given the time it takes for information to be assimilated in the market place and the relative long leasing and equipment acquisition lead times, it is essential that customers have a long lead-time. In 2004, we propose \$150 rebates for the more efficient Level 2 machines in anticipation that the IOUs will continue the rebate at this amount in their Express Efficiency program. In 2005, we will eliminate the Level 1 equipment and reduce the Level 2 rebates to ensure program cost effectiveness as the baseline efficiency increases with the new standard.

For lighting measures, our maximum incentive of \$1025 per peak GCP kW is based on meeting about 75 percent of the estimated typical small business lighting project cost of \$1367 per GCP kW. This estimate is based on experience with similar small business lighting retrofit programs including the Commission funded 2001 Brighter Business Program. It combines estimated costs of \$2,500 and \$800 per kW to perform lamp-to-lamp projects (1/3 of jobs) and delamping projects (2/3 of jobs), the estimated mix of project retrofit types based on past experience in Brighter Businesses program.

For the boiler measure, our maximum incentive of \$6 per MBtuh is based on meeting about 60 percent of the estimated typical Laundromat project cost of \$9.81 per Mbtuh (per DEER database).

**Table 14. Rebate/Incentive Amounts**

Program Period	Minimum LightWash Specifications	Modified Energy Factor (cubic feet/kWh)	Water Factor (gallons/cubic foot)	Proposed PGC Rebate (not including Water Rebates)
PY 2004 Washer	Washer Level 1*	$\geq 1.26$	$\leq 9.5$	\$75
	Washer Level 2**	$\geq 1.8$	$\leq 7.5$	\$150
PY 2005 Washers		$\geq 1.8$	$\geq 7.5$	\$100
PY 2004/2005 Instantaneous Water Heaters Boilers	Greater than or equal to 95% thermal efficiency	N/A	N/A	\$6 per MBtuh
PY2004/2005 Lighting Retrofits		N/A	N/A	A maximum \$1,025 per GCP kW

## D. Activities Descriptions

In the proposed LightWash program, there are no major activities that do not generate savings worthy of reporting. All rebate processing activity corresponds to calculated savings. Similarly in the lighting program, all major activities including sales calls, audits, application processing and site visits correspond directly to calculated savings. Non-savings generating marketing activities are already described in the Marketing Plan section above and are articulated in the proposal workbook.

## V. Goals

### Measurable Energy Efficiency Activities

The LightWash Program expected to yield the achievements in the following table.

**Table 12. Program Achievements (2004-2005)**

	Unit Goals	Net Lifetime Energy Savings (therms)	Net Lifetime Energy Savings (kWh)	Net Demand Reduction (kW)
Washer 2004 Goals	1,400	941,000	5,524,000	78
Washer 2005 Goals	900	204,000	1,538,000	14
Lighting (2004-05)	200	N/A	20,386,000	192
Instantaneous water heater boiler Goals <sup>8</sup> (2004-05)	32,000	3,005,000	N/A	N/A

### Marketing Activity Goals

The LightWash program will complete the following non-impacts related milestones:

**Table 13. Program Achievements (2004-2005)**

	Quantity	Target Completion Date
Brochures	5	12 weeks from contract signing, and continuing
Bill Inserts	17,500	12 weeks from contract signing, and continuing
Print Advertising	6	12 weeks from contract signing, and continuing
Web site	N/a	12 weeks from contract signing, and continuing

<sup>8</sup> Based on a Unit Goal = 1 MBtu



## **VI. Program Evaluation, Measurement and Verification (EM&V)**

The LightWash team will develop a detailed EM&V Plan. This plan will provide a complete approach and outline actions to be taken by LightWash and the third party EM&V consultant hired by the IOU or the Commission. The Plan will help ensure that important baseline data is collected as the projects proceed so that transitory information is not lost. The EM&V Plan will also allow for:

- Verification of the achievement of the Program unit-based marketing activities
- Identification of appropriate sources for per unit deemed savings for each measure
- Evaluation compliant with the International Performance Monitoring and Verification Protocols and based on appropriate portions of the CPUC Energy Efficiency Policy Manual

A key component of the EM&V effort is the Program Tracking Database, a Microsoft Access-based tracking database that organizes, stores, and analyses required program participant data, deemed savings data, and contact information. Program staff will update and maintain the Tracking Database as necessary to support Program operations. This will include regular back ups for data loss protection. This Database will track all crucial EM&V data by participant project.

Energy Solutions' core objective is to have the EM&V contractor perform several tasks. One of these tasks includes independent inspections of appropriate samples of the sites that received program services. Independent onsite verifications will be performed by an EM&V contractor to confirm that the measures claimed to have been installed by the LightWash program have been installed and are the of the type and specifications claimed in the tracking database. In addition, for quality control purposes, Energy Solutions and its agents, as part of their program implementation methodology, will conduct post-installation inspections of all lighting jobs and a small, generally<sup>9</sup> random sample of washer installation sites.

Another task included in the EM&V Plan will be the estimation of the peak kW and annual kWh and Therm savings accrued by the. This approach will stipulate the delta kWh, therm, and peak kW values for the lighting and washing machines installed. The stipulated values used in the savings estimates will come from the data developed by the extensive evaluations conducted in the state of California over the past 10 years and from the California Energy Commission (CEC) databases.

The database will be assessed to be sure that it correctly calculates the savings estimates and correctly accumulates savings for program progress tracking. The evaluation will review the input parameters, algorithms, and program-tracking database used to compute and keep track of the gross program energy and demand savings and, if necessary, will recommend changes or adjustments to accurately reflect savings.

LightWash also proposes a Final Report. Ongoing energy and demand savings calculations will have been presented in our monthly reporting throughout the program period. However, it will still

---

<sup>9</sup>In some cases, Energy Solutions will schedule inspections for applications where circumstances are somewhat suspect or simply due to the large size of bigger installations.

be necessary to combine all of the monthly estimates with the number of installations found during the EM&V inspections, summarize the findings, and create recommendations “for improvements to the Program in order to help any future implementation efforts”. After completing the final savings calculations and EM&V inspections, LightWash will draft a final report addressing this issue. This report will contain an executive summary of the findings, an introduction to the objectives and overview of the project, the methodology of the analysis techniques, a detailed results section, conclusions and recommendations. Reporting will also include regular weekly conference calls, as needed, held with the Energy Solutions evaluation project manager, and periodic deliverables documenting the work and results of the evaluation.

Energy Solutions proposes to select firms to provide EM&V services for the program. Equipoise Consulting has the expertise to conduct EM&V on the washer component of the Program (and is currently evaluating the LightWash 2002/2003 program). Quantum Consulting is proposed for perform EM&V on the lighting portion of the program.

Neither Equipoise Consulting Inc. or Quantum Consulting will serve as a subcontractor that will deliver services for the LightWash Program. There are no known factors that might lead the Commission to question the independence of Equipoise Consulting Inc. or Quantum Consulting, and there are no known factors why the Commission might not select Equipoise Consulting Inc. or Quantum Consulting for conducting EM&V services.

## VII. Qualifications

### 7.1 Primary Implementer

#### **Experience With Successful Delivery Of PGC-Funded Programs**

Energy Solutions has an exceptionally strong track record implementing Public Goods Charge funded Local programs. We currently are managing three major PGC-funded energy efficiency programs, as well as having implemented six third-party energy efficiency program contracts in 2001. Energy Solutions' programs have consistently exceeded program cost-effectiveness goals by delivering additional energy savings without exceeding original budgets. Additionally, our programs have helped the Commission achieve Equity goals by consistently reaching targeted communities, as indicated by meeting all performance measures for Hard-to-Reach customers. The table below illustrates our track record for delivering energy efficiency savings.

<b>2001-03 Energy Solutions Programs</b>	<b>Percent of Goal Accomplished</b>
Office Equipment Efficiency Phase 1	110 percent
Office Equipment Efficiency Phase 2	170 percent
Fast Track Lighting Phase 1	113 percent
Fast Track Lighting Phase 2	154 percent
Energy Efficiency Design Assistance	150 percent
Brighter Businesses Lighting	110 percent
LightWash (prime contractor role)	On track to exceed goals
Brighter Businesses (Independent subcontractor program in Stockton)	On track to exceed goals
Energy Efficient Design Assistance (Independent subcontractor program in Oakland Energy Partnership)	On track to exceed goals

#### **Independent Program Administration**

Energy Solutions staff members have administered contracts ranging from \$5,000 to \$2,500,000 with overall responsibility for energy-efficiency program budgets as large as \$15 million. Energy Solutions has extensive experience managing teams of subcontractors as well as providing comprehensive status reporting to IOU and state agency clients. Energy Solutions' experience in these areas is most recently evidenced by the development and administration of the above PGC-funded Local programs from 2001 through 2003. These programs have all been completed on schedule and under budget, or are on track to do so. Some of these programs are described briefly below.

#### *LightWash Program*

Energy Solutions developed the LightWash program and was awarded over \$2.5 million by the California Public Utilities Commission to implement it in 2002 and 2003. LightWash promotes and provides prescriptive rebates for the installation of high efficiency commercial clothes washers in

Laundromats and multi-family and institutional common area laundry facilities. This innovative program leverages California public goods funding to link and consolidate numerous independent local water utility commercial washer rebate programs (both new and pre-existing) with matching energy rebates. In effect, LightWash provides turnkey program administration and marketing services on the behalf of its water agency partners, and provides a seamless front end for customers who receive combined energy and water rebates. Within the first few months of operation, Energy Solutions had recruited and established partnerships with dozens of water agencies representing most of Southern California and much of urbanized Northern California. The LightWash program retains local control for its participating water utilities over rebate amounts, funding commitments, and final customer payment authorization, while leveraging the magnitude of the aggregated service areas to best advantage for aggressive statewide marketing and outreach tactics and for interacting with manufacturers and trade allies.

### *The Brighter Businesses Program*

Energy Solutions is currently implementing the Brighter Businesses program as a turnkey small business direct install program within the Stockton Comprehensive Energy program. In 2001, Brighter Businesses served as a stand-alone program element in the East San Francisco Bay Area, providing lighting efficiency improvement services to under-served small businesses and non-profits. The Program provides participants with turnkey lighting retrofit services and referrals to other programs for non-lighting measures. Brighter Businesses delivers maximized energy savings at each site through comprehensive lighting retrofits, provided by an unbiased lighting professional, using the latest technologies. The Program has allowed small businesses to overcome the historical barriers to energy efficiency by providing design assistance, pre-qualified installation and quality control services. Preset unit prices for equipment avoids the cost of bidding individual jobs. The East Bay Program achieved its primary strategic objectives by providing high quality, comprehensive lighting retrofits to numerous very small customers, usually tenants in low income areas, who would not otherwise have participated in PGC-funded lighting retrofit programs. Indicators of the program success in targeting very small customers are that average lighting savings were over 50 percent with median peak kW savings under 1 kW.

### *Office Equipment Efficiency Program*

Office equipment uses significant amounts of daytime, on-peak electricity, yet available energy efficiency measures to reduce this end-use have historically been underutilized. Recognizing this untapped resource, in 2001 Energy Solutions developed the Office Equipment Efficiency program. To help commercial and institutional customers reduce energy use of office plug load, the program disbursed and tracked incentive payments for enabling ENERGY STAR<sup>®</sup> monitor power management, provided free technical assistance, and created instructional Web pages and marketing materials as part of its Outreach and Marketing Plans. By partnering with a manufacturer of energy-saving hardware, the program was able to provide these occupancy sensor controls for lighting and plug loads to participants at below wholesale costs.

## **Program Management Experience**

Energy Solutions brings extensive experience developing, marketing, and administering energy efficiency programs. Our program experience includes conducting market research, innovating initial program designs, assessing technologies for inclusion in programs, creating marketing

strategies and materials, managing implementation activities, and conducting quality assurance work. Our experience managing programs providing comprehensive energy efficiency improvement services, often on a turnkey basis, is illustrated in the following examples:

#### *Express Efficiency and Standard Performance Contract Programs*

From 1997 through 2000, Energy Solutions managed much of the PG&E Express Efficiency commercial retrofit rebate program design and implementation activity, for both upstream and downstream components. From 1998 to 2000, Energy Solutions' turnkey marketing program for PG&E's Express Efficiency program resulted in the program exceeding target goals; the 2000 program received over 22,000 applications, a dramatic increase over the previous year. Energy Solutions also designed and produced applications for the statewide Express Efficiency rebate program for small- and medium-sized business customers served by California's four investor-owned utility companies. The utility companies chose to base the new (as of 2000) statewide program on the PG&E Express Efficiency program, which Energy Solutions supported for several years.

#### *Local Government Energy Efficiency Program*

Pacific Gas and Electric Company hired a team lead by Energy Solutions to collaborate with cities and counties to establish local government energy efficiency policies and programs that promote new residential construction exceeding Title 24 requirements. Energy Solutions managed the outreach and recruitment of participating local governments and provided technical support. Energy Solutions also coordinated the subcontractor team, including the Sacramento-based Local Government Commission. The program successfully provided a variety of innovative, customized policy and programmatic solutions that can be easily replicated by other local governments.

#### *2000 Upstream Residential Air Conditioning Program*

Energy Solutions supported the design and then fully implemented this program on behalf of PG&E. The program required developing relationships with potential trade ally participants, the creation of a tracking database, payment of incentives, and coordination of post-field inspections. Energy Solutions handled the day-to-day operation of the program, often interfacing with residential AC distributors to answer program questions and facilitate participation in the program.

### **Marketing Experience**

The Linda Brandon Design/Energy Solutions team has worked closely for the last five years to produce effective marketing materials. By combining our technical and market knowledge of energy efficiency with the skills of a graphic design team experienced in energy-efficiency programs, we can quickly provide high quality, effective marketing materials to launch a program or boost participation. Our team has designed energy-efficiency marketing materials for Pacific Gas and Electric Company, Southern California Edison, San Diego Gas and Electric, Southern California Gas, Stanford University, and the City of Oakland.

From 1998 to 2000, Energy Solutions' turnkey marketing program for PG&E's Express Efficiency program resulted in the program exceeding target goals; the 2000 program received over 22,000 applications. The utility companies chose to base the new statewide program on the PG&E Express Efficiency program, which we our staff have supported since 1991. Energy Solutions and Linda Brandon Design have designed, written, and in many cases produced brochures and fact sheets for

PG&E's Express Efficiency, Standard Performance Contract and CustomNet programs. Energy Solutions also worked with Linda Brandon Design to create and produce brochures for the independent programs we administered under PG&E's Third Party Initiative funding. Together, we have designed, written, and in many cases produced a wide variety of collateral materials including:

- Mailers --postcard, single- and multi-fold, slim-jim, and other formats. (LightWash, Express Efficiency, SPC, SmarterEnergy, PG&E Energy Efficiency Seminars)
- Promotion registration forms with business reply card. (Express Efficiency)
- Application forms. (LightWash, Brighter Businesses, Express Efficiency, SmarterEnergy)
- Promotional business cards. (LightWash, SmarterEnergy, Smart Lights, Right Lights, Cool Roof Rating Council)
- "Give-away" items --sticky notes, pencils, etc. (Stanford University)

Our team members work together to deliver an integrated package of marketing services that directly address the program needs. Examples can be found in the Marketing Material Samples section of this proposal.

## **7.2 Subcontractor**

No subcontractors are identified for this proposal.

## **7.3 Resumes**

### **Ted Pope, Director**

Mr. Pope manages Energy Solutions' residential markets and codes and standards consulting practices. He provides market research, program design and implementation, regulatory compliance, and efficiency standards intervention support activities to utility, local government, and non-profit clients. Mr. Pope oversees the implementation of California's LightWash commercial clothes washer rebate program, as well as Energy Solutions' administration of the Cool Roof Rating Council. He provides analytical and process support for the establishment of state and federal appliance standards. Previously, Mr. Pope developed and/or managed the residential clothes washer, refrigerator, lighting fixture, emerging technologies, and geothermal heat pump programs for PG&E. He has taken leadership roles in facilitating several regional and national collaborative program-planning activities. Earlier, at Seattle City Light in Seattle, Washington, Mr. Pope managed a water heater rebate program and earned an EPRI Innovator award for leadership of the ground breaking EPRI clothes washer research project known as THELMA. While at Seattle City Light, he helped develop the performance specifications and authored the technical support documentation for Consortium for Energy Efficiency's widely adopted national efficient washer program. Prior to Seattle City Light, Mr. Pope worked at the Washington State Energy Office where he prepared program evaluations and provided technical support to Northwest utilities for residential appliance program development. Mr. Pope earned a Bachelor of Science in City and Regional Planning from Cornell University with an emphasis in engineering.

**Erika Walther, Project Manager**

Erika Walther is currently the program manager for LightWash, an incentive program that promotes the use of efficient commercial washing machines in coin laundry stores and multi-family common area laundries. She also provides technical support for development of new State appliance standards. Ms. Walther designed and implemented the Water-wise Landscape Rebate Program for Stanford University's Utilities Division and supported design and implementation activities for the Office Equipment Efficiency Program (a third party initiative administered by PG&E in PY2001), as well as PG&E's Residential Air Conditioning Distributor Incentive program for PY2000. Other recent projects include managing the design and distribution of energy-efficiency program brochures, implementing an email marketing campaign to reduce peak electricity use, and supporting PG&E's work with local governments to promote green building practices. Ms. Walther brings with her international and domestic experience in the design, implementation, and financing of renewable energy projects. Prior to coming to Energy Solutions, Ms. Walther conducted research at U.C. Berkeley's Renewable and Appropriate Energy Laboratory assessing the efficiency and performance of solar thermal and solar electric technologies. Ms. Walther is a Certified Energy Manager (C.E.M.) and received her Master of Arts Degree from the Energy and Resources Group at U.C. Berkeley and her Bachelor of Arts Degree in Environmental Studies from U.C. Santa Barbara.

**Bruce L. Chamberlain, Project Manager**

Mr. Chamberlain is currently the lead on the lighting component of the LightWash Program. He is also the lead in assisting the Community Energy Services Corporation (CESC) and Ecology Action in designing and implementing two, separate CPUC-funded local government initiatives targeting under-served small businesses. The Smart Lights Program serves the Cities of Berkeley and Oakland and the RightLights program targets businesses in the Monterey Bay area. He has also managed customer application processing support for Southern California Edison Company's (SCE) Express Efficiency rebate program, which targets the small to medium commercial market. Prior to joining Energy Solutions, Mr. Chamberlain developed and/or managed four residential energy efficiency programs as a Program Manager with PG&E. These included two multifamily residential contractor programs, the Residential Air Conditioning Distributor Incentive program and a joint energy-efficiency marketing research effort with the City of San Jose. Previously, Mr. Chamberlain designed and managed municipal energy projects for both the City of San Francisco's Bureau of Energy Conservation and City of Berkeley's Energy Office. Projects ranged from a large-scale, comprehensive energy retrofit project in the Recreation and Park Department to two U.S. Department of Energy grants (Boiler Efficiency Program Guidebook and Implementation Tools for Municipal Energy Retrofits). In addition to the municipal sector, Mr. Chamberlain's energy-efficiency program experience covers energy accounting assistance, lighting surveys and lighting technology demonstrations at schools, small businesses, hotels, and Indian reservations. Mr. Chamberlain is a Certified Energy Manager (CEM) and received a Bachelor of Science Degree in Renewable Natural Resources at U.C. Davis with an emphasis in environmental planning and management.

## VIII. Budget

The proposed Program reauthorization requires a total program budget of \$1,128,874 over two-years (including third party MV&E budgets, but exclusive of profit.) Because all Program activities occur inside the PG&E service territory, all funds should be allocated to the PG&E service territory account.

The table below provides a breakdown of costs presented in terms of the major budget categories described in the Budget Worksheet section of the Program Implementation Workbook. Additional detail is available in the Program Implementation Workbook, submitted at the same time as this narrative. The cost summary is as follows.

<b>LightWash Budget Summary</b>		
	<b>Subtotals</b>	
<b>1. Administrative</b>		
1.1 Managerial and Clerical Labor	\$84,103	
1.2 Human Resource Support and Development	\$122,937	
1.3 Travel and Conference Fees	\$12,140	
1.4 Overhead (General and Administrative) - Labor and Materials	\$212,398	
<i>Administrative subtotal</i>		<i>\$431,578</i>
<b>2. Marketing/Advertising/Outreach</b>		
Labor - Outreach	\$61,034	
Marketing Materials	\$59,800	
<i>Marketing Subtotal</i>		<i>\$120,834</i>
<b>3. Direct Implementation</b>		
Financial Incentives to Customers	\$627,000	
Labor – Lighting Audits	\$9,425	
Hardware and Materials	\$13,000	
Rebate Processing and Inspection	\$75,442	
<i>Direct Implementation subtotal</i>		<i>\$724,867</i>
<b>4. Evaluation, Measurement and Verification</b>		
Labor - EM&V	\$7,540	
Third Party EM&V	\$56,000	
EM&V Overhead	\$12,720	
<i>EM&amp;V Subtotal</i>		<i>\$76,260</i>
<b>PROGRAM GRAND TOTAL</b>		<b>\$1,353,539</b>
Note: All Labor line items are Direct Labor only		



Selected line item explanations are as follows:

- All allocations between direct labor and administrative or overhead categories is based on best estimates drawn from recent history for Energy Solutions.
- *Administrative* includes all implementation planning, contract management, reporting to the funding agency as well as overhead costs and other splits as directed by the Commission's Policy Manual.
- *Marketing and Outreach* includes all costs for outreach contacts, networking, and the marketing plan. The marketing materials budget includes design and production of brochures, posters and other materials, along with placement, postage, mailing lists and mailing services for the direct mail campaign.
- *Direct Implementation* includes financial incentives to customers, lighting audits, hardware and materials (including audit forms and diagnostic tools) and rebate processing/ inspection (including field verification and rebate forms)
- *Evaluation, Measurement and Verification* costs are based on the EM&V plan for the 2002-03 LightWash program. The budget includes all third party costs to develop and implement an EM&V plan, and to labor to report back to the project team, the IOU, and the Commission.

The proposal workbook includes more detailed descriptions of most line items.