



Global Energy Partners, LLC

AN EPRI, DMJMHN COMPANY

Energy Efficiency Program for California's Food Processors in SCE's Service Area

Confirmation Number: _____

Submitted by:

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List of all other programs proposed to CPUC:

Energy Efficiency Program for California's Food Processors in PG&E's Service Area
Expansion of Energy Efficiency Services for Oil Production into the PG&E Service Area
Continuation of Energy Efficiency Services for Oil Production in the SCE Service Area
Certified Organic Farmer Energy Efficiency Program
Energy Efficiency Program for Orange County's Hard-to-Reach Agencies

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Section I. Program Overview

Global Energy Partners, LLC (Global) is pleased to submit to the California Public Utilities Commission (CPUC) a proposal to design, administer, and implement an energy efficiency program targeted to California's small- and medium-sized food processors in SCE's service area. Although the target participants receive electricity from SCE, they also receive natural gas from SoCalGas. However, only electric energy efficiency improvements are considered for this program to comply with the CPUC's requirement to focus on only one utility service area per proposal. If reductions in natural gas consumption are also considered, a more comprehensive program can be developed that addresses the hard-to-reach market's electric and gas energy efficiency needs.

The program will achieve a peak demand reduction of 1.5 MW and electric energy savings of 5.7 GWh in a two-year period. The program has been designed to create long-term energy savings through the measures implemented as part of the program and through education of the program participants.

This proposal builds on Global's experiences with three successful implementation programs for the CPUC, the California Energy Commission (CEC) and the California Independent System Operator (ISO). In all three cases, we have designed and implemented marketing and customer recruitment plans, conducted audits and technical analyses, and utilized information technology to implement successful programs. Global is currently implementing a program to serve the needs of the small, hard-to-reach on-shore oil producers in southern California. It is this experience in California that makes Global's proposal unique. Global has gained the experience, developed the tools, and developed the process to make this proposal a success. The proposed program also builds on three core competencies of Global's consulting practice.

- Fifteen years of experience in serving the national agricultural and food processing sector through EPRI's Agricultural and Food Technology Alliance (AFTA). This center, managed by Global, has conducted extensive research on and demonstrations of energy efficient technologies for food processing facilities, including the landmark "Food Industry 2000: Food Processing Opportunities, Challenges, and New Technology Applications."
- More than fifteen years of experience by Global (and its predecessor, NEOS, in conducting energy and waste minimization audits)
- A keen understanding of the end user corporate energy efficiency decision-making process, gained through experience of senior management staff with more than 150 years collective experience in the energy and energy efficiency industry.

With respect to the CPUC's primary criteria for evaluating public goods charge (PGC) Hardware and Incentive Programs, Global expects this Program to achieve the following:

- **Cost Effectiveness:** The values for the Programs' Total Resource Cost (TRC) and Participant Test (PT) are estimated as identified in the California Standard Practices Manual (SPM). The results yield the following estimates:

$$\text{TRC} = 1.75$$

$$\text{PT} = 10.4$$

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(Section 4 and this Program's workbook present the calculations and associated assumptions.)

If the program is expanded to address natural gas energy efficiency improvements, the program budget would need to be increased by about 15% and the estimated cost-effectiveness results would be:

$$\text{TRC} = 2.4$$

$$\text{PT} = 8.4$$

- **Long-term Annual Energy Savings:** Global's program is designed to create long-term energy savings in the electric peak demand and electricity and natural gas consumption of small- and medium-sized food processors. This is accomplished through education of food processors on the wide range of benefits resulting from the implementation of energy efficiency measures and the installation of measures that improve the operation of electric motor, compressed air, steam, refrigeration, lighting, HVAC, and other process systems at the facilities of small- and medium-sized food processors served by SCE.
- **Electric Peak Demand Savings:** Global's program is designed to achieve a minimum of 1.5 MW in peak demand savings through the implementation of the proposed energy efficiency measures. This number takes into account a Net-to-Gross Ratio of 0.83.
- **Equity:** The target of this program is the small- and medium-sized food processors that have been contributing to the PGC funds without participating in the energy efficiency programs offered by the utilities. The small- and medium-sized food processors are struggling to compete with larger national and international facilities and lack the resources to identify and evaluate opportunities to improve their energy consumption efficiency. By working with trade and regional organizations that have strong relationships with these types of food processors, Global will ensure their participation.
- **Ability to Overcome Market Barriers:** The objective of this Program is to overcome market barriers to small- and medium-sized food processors. These barriers include high first cost, lack of staff with expertise in energy efficiency, focus on other aspects of food processing that have higher impacts on production costs, lack of consumer information about energy efficiency benefits, and lack of information on available financing for energy efficiency improvements. These barriers are compounded by the lack of English language skills and limited access to available information for the growing number of small- and medium-sized food processors who are Spanish speakers. The target market is in need of program incentives to implement energy efficiency measures and to overcome the market barriers described above. The program addresses all these barriers by providing access to information both in English and Spanish, educating participants, and providing incentives such as on-site energy audits with reports that cover technical and financial benefits, financing options, and a plan to implement the recommended measures. Our ultimate goal is to have these food processors better understand the financial and technical benefits of reducing their energy consumption as well as knowing where and how to obtain the necessary financing to get projects implemented on their own.
- **Innovation:** Global plans to provide development of an Internet-based platform to promote program sustainability for interested participants. The website will contain all Program

educational materials and surveys in English and Spanish. The site will provide ready access to industry information, links to energy efficiency technologies for the target market, benchmark tools, similar utility programs, financing alternatives and best practices information.

- **Coordination with Programs Run by Other Entities:** Global plans to coordinate this Program with others that address energy efficiency issues such as the California Energy Commission's Flex Your Power, those run by SCE (such as the Standard Performance Program) and other third parties, and relevant local programs. We plan to explain clearly to this Program's participants how their participation relates to other programs. This will ensure that participants obtain full advantage of programs available to them and will avoid overlaps and confusion.

A. Program Concept

Global proposes to design and implement a non-utility incentive program to serve the food processing industry in SCE's service area. The specific target market is the small- and medium-sized food processors that require information and incentives to motivate them to take actions that reduce their energy consumption and costs. The program has been designed to achieve long-term demand and energy savings through the implementation of the following categories of energy efficiency measures:

- Improvements to electric motor systems
- Improvements to compressed air systems
- Improvements to refrigeration systems
- Improvements to lighting systems
- Improvements to HVAC systems
- Other process improvements

This program will audit energy end uses in small- and medium-sized food processors in California and identify cost-effective energy efficiency measures. The program will also provide financial incentives to encourage implementation of identified projects and will assist participants in identifying other financing sources. These three program components address the two greatest obstacles to enhanced industrial energy efficiency: lack of sufficient and objective information and competition for capital funds. The program will examine process and non-process energy uses and will offer detailed recommendations for energy improvements with an emphasis and incentive structure that favor those improvements that are most cost effective.

B. Program Rationale

The potential for energy efficiency improvements in the food processing industry is enormous. The Industrial Assessment Centers of the US Department of Energy Office of Energy Efficiency and

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Renewable Energy has funded hundreds of one-day plant-wide energy efficiency and waste reduction assessments in small- and medium-sized food processing facilities throughout the country. In almost every case, the assessment has identified tens of thousands of dollars of annual energy savings with average simple paybacks of less than two years. In many cases the projected simple payback is less than one year.

As the largest agricultural state in the nation, California is also the largest employer of food processing workers in the nation and the nation's largest producer of food and food products. It is estimated that California alone makes food shipments in excess of \$50 billion per year. A thriving, efficient and competitive food processing industry is therefore critical to preserving jobs in California and to maintaining a strong revenue and tax base. One way to help maintain the health of that industry is by helping facility personnel manage and reduce their energy costs.

Energy, although not nearly the largest operating expense in the food processing industry is nevertheless a sizable expenditure. In 1996, California's food processors used 11.3 percent of the electricity consumed by industrial customers in the state.¹ Equally important, although energy is almost never the largest operating expense of any facility—industrial or otherwise, it is often the largest controllable and manageable expense. More importantly it is one end use expense that can almost always be reduced with no commensurate reduction in product output or quality. Furthermore, projects that enhance energy efficiency almost always offer other non-energy benefits such as improved reliability, better process control, and environmental improvements.

According to the California League of Food Processors (CLFP), the California food processing industry uses approximately 300-400 million therms of natural gas and 600-800 million-kilowatt hours of electricity to process 16-18 million tons of food each year. The California food industry faces competition from both domestic and foreign producers. The League believes that as part of the solution to increasing energy costs, "...food processors need the ability and tools to address high energy costs."²

Close to 6,000 food processors are registered in the State of California. For the most part, the largest among these can and likely do employ staff or consultants to help manage energy costs and identify energy efficiencies on both the supply and demand sides. The smallest among these are extremely small facilities, typically one-room processors of specialty foods, which offer small energy efficiency potential. The rest, small- and medium-sized food processors, struggle to compete with the larger California processors as well as with other domestic and foreign producers. California's high energy costs make competition for these processors even more difficult. These processors lack the resources required to identify and evaluate energy efficiency opportunities and need education and incentives to undertake energy consumption improvements. For these reasons, this program targets the small- and medium-sized food processors.

¹ California Energy Commission, Commission Website (www.energy.ca.gov/pier/indust/food_processing.html)

² California League of Food Processors, White Paper, February 2001.

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Global's program will succeed where other programs may have failed because it takes into account real industry priorities and it provides sensible solutions to the obstacles that currently deter investments in energy efficiency in this industry. The table below lists some of the more considerable barriers to energy efficiency in this industry and the mitigating strategies that this program will use to surmount each obstacle.

Program Strategies to Reduce Barriers to Energy Efficiency for Small- and Medium-Sized Food Processors

Barrier	Strategy
Companies don't have the funds and qualified staff to identify energy efficiency opportunities.	Energy audits are provided at no cost to qualifying facilities.
Managers simply don't have time to schedule audits and manage projects.	The program will provide a minimally invasive audit procedure and will offer guidance on implementation.
Food processors are focused on safety and quality of raw goods and finished product.	Global's staff includes food industry professionals who have achieved successful careers in the food processing industry. Our staff speaks the language and understands their concerns. These qualities create a significant program marketing advantage.
Energy efficiency projects do not meet investment criteria, or other projects are more competitive.	A pre-qualifying questionnaire will explore prospect investment criteria and will identify those sites most likely to yield very competitive projects. Incentives will enhance the attractiveness of energy efficiency projects.
Companies lack investment capital.	Incentives will supply some capital and first-year energy savings may provide the balance in most or many cases, meaning investments can be drawn from current year operating funds. The program will also assist in identifying additional financing sources
Companies are wary of information provided by vendors.	The program will provide reliable, objective information that can be trusted by company decision-makers.
Companies are wary of new technologies that affect or change common processes.	This program will focus primarily on technologies that are fully commercialized, readily available and well proven, minimizing the appearance and likelihood of the risk of adverse process impacts.
In addition to the barriers listed above, the growing number of Spanish-speaking food processors lack English language skills and find very little information available in Spanish.	The program will produce marketing and education materials in English and Spanish and will provide access to program representatives that are fluent in Spanish as well as English.

C. Program Objectives

The objectives of this program are:

- Overcome the market barriers to energy efficiency described in the table above, and
- Promote the installation of energy efficiency measures in the facilities owned and operated by small- and medium-sized food processors that will result in long-term energy savings (reduction in electric demand and annual electricity consumption).

The energy savings goals for this program are:

- Electric Demand Savings: 1,527 kW
- Electric Energy Consumption Savings: 5,727,000 kWh

The program will be guided by the following four additional objectives:

1. Develop simplified screening processes and tools to pre-qualify audit candidates and maximize the program's cost effectiveness.
2. Develop an audit methodology that will be used to conduct energy audits in food processing facilities and identify electric energy efficiency opportunities that will collectively result in savings of at least ten percent at each site.
3. Develop financial assistance structures that, while sufficient to motivate energy efficiency investments, do not pay for energy efficiency enhancements that would have been pursued in the absence of incentives.
4. Track results, report findings and make recommendations for future marketing, training and rebate programs.

This program will be designed and deployed with a keen knowledge of the target market. Global understands this market. Our Agriculture and Food Technology Alliance (AFTA) has served as a vehicle to develop relationships with food processors in California and across the country and is responsible for significant improvements in this industry in its own right. For example, in response to the Food Additive Petition prepared and submitted by AFTA in August 2000, the Food and Drug Administration (FDA) made a final ruling in June 2001, allowing the use of ozone as a contact Antimicrobial Agent in Food Processing and Agricultural Production. This significant advancement allows for the displacement of enormous amount of hot water and chemicals formerly used for cleaning vegetables, poultry, grain and other food products. In addition, Global will work with trade and regional organizations that have strong contacts with the target participants.

The program's target market is in need of program assistance and financial incentives to implement energy efficiency measures and overcome the market barriers. Like most small- and medium-sized industry, this market lacks the financial and technical resources to advance the implementation of energy efficiency measures. Global's ultimate goal is to create long-term energy savings in electricity consumption and electric demand by helping small- and medium-sized food processors understand the

financial and technical benefits of modifying their energy use and understanding where and how to obtain the necessary financing to implement projects.

Section II. Program Process

A. Program Implementation

Global will utilize its broad experience implementing energy efficiency programs and will build off the existing processes, procedures, forms, and databases to efficiently and effectively implement this program. Global will design, manage, and implement this program in the following stages:

1. Develop Customer Recruitment and Marketing Plans

Working with trade, local, and regional organizations and based on our own experience working with this industry, Global will develop a plan to recruit program participants. This plan will focus on the energy and non-energy needs and priorities of the participants and develop marketing themes that address the most pressing related needs.

2. Develop Qualification and Survey Process

Starting with the process designed for the oilfield energy efficiency program, Global will develop a process to qualify and survey participants once they have been recruited into the program. This methodology includes:

- Determination of customer eligibility
- Performance of an initial phone survey
- Qualification and prioritization of prospects

3. Develop Training and Outreach Plan

Global will develop a training and outreach plan targeted to solicit participants, promote ongoing interest in the program and help insure program sustainability. Global's plan will include workshops, participation in industry events, articles in industry newsletters, among other venues, to promote the program, educate potential participants, and recruit participants. In its experience in California and elsewhere, Airometrix, a subcontractor to Global has relied almost exclusively on workshops targeting plant managers responsible for compressed air systems as a way to very successfully recruit clients. Global will use best practices and case studies to further encourage and remove barriers to participation. This information will be included in the program's marketing materials and the program's website. The marketing materials and the information available in the website will be developed in English and Spanish.

4. Develop Energy Auditing Process

In this phase Global will develop an efficient and effective energy auditing process to be used at food processing facilities. As an experienced auditing company and an approved auditor under the Federal Energy Management Program, Global will develop this process from a position far along the learning curve. The experience of Global staff helping the DOE develop and deploy the Motor Challenge, Steam Challenge, and Compressed Air challenge creates a close familiarity with the details of the energy audit that are unique to industry. In addition, one of our subcontractors, Airometrix has unique expertise and extensive experience conducting assessments of compressed air systems in the food processing industry. Global will expand its relationships with key trade allies and equipment vendors to help identify and capture critical opportunities such as those situations where equipment has failed and a replacement must be identified and installed. These otherwise lost opportunities present some of the greatest potential for cost effective energy efficiency.

5. Develop Certification and Verification Process

Global will develop the process to certify the proper installation of any recommended measures before rebates are issued to the individual participants. Rebates will be issued based on verification of savings for the successful installations. Global will also develop the process to transfer the results of the certification as well as any related data to the third party evaluator.

6. Develop Reporting Requirements

Global will develop reporting formats and requirements that contain information on program budgets and expenditures; projects, measures, and/or activities that were funded; the amount of energy savings and peak demand reductions associated with the program expenditures; and other information necessary to monitor compliance with Commission guidelines.

7. Coordinate with Existing Utility Programs

The Global team will establish a matrix of available CEC and SCE financing and rebate programs that would apply towards projects to be implemented under this program. Global will work to ensure consistency between the incentive amounts available from this program and other available programs to avoid confusing food processors. Rebate information will be reported in the economic analysis of the project to the individual participants.

B. Marketing Plan

Global's marketing plan is designed to educate food processors about the bottom-line benefits of identifying and installing energy efficiency measures in their plants and about the technical and financial assistance available through the proposed program and other programs. Global will use a variety of marketing methods to target potential program participants. These methods include direct mail, workshops, trade press and other articles, website links, E- campaigns and partner/ affiliate marketing. The collateral will make full use of the industry associations, trade journals and shows as

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well as the Internet to increase awareness and participation, and explain the financial benefits of program participation. We will develop specific Program collateral material that explains the benefits of the proposed approach and the savings the customer can anticipate as a direct result of implementing a comprehensive energy and demand reduction program. These marketing materials will be prepared in English and Spanish and will be distributed through our partnership with trade, local, and regional organizations and other trade allies and channels that are identified as the program proceeds. Some of these organizations include:

- Regional and Local Economic Development Corporations
- The California League of Food Processors
- The Dried Fruit Association of California
- The American Frozen Food Institute
- The Processed Tomato Foundation
- The California Olive Industry Association

Global has already received verbal commitments from some of these organizations to participate in the program. We will also seek out government, regulatory and other channels. For example, food processors are heavily regulated by state and federal agencies and are often assisted by local, state or regional economic development organizations. We will take advantage of these existing relationships as a means to distribute program materials and explore options for Internet links and other marketing opportunities.

Currently we would expect to produce the following marketing materials.

1. An Internet site with a unique identity for the program. The site will be modest with regard to costs and will contain sufficient information to educate prospects of the program benefits and an email send link that prospects can use to signify interests. We will offer links to this site to trade partners, suppliers, regulators, associations and others.
2. A multi-branded program brochure to be distributed by Global, the CPUC, partner organizations, market participants, government agencies and others. The brochure text will serve multiple purposes including serving as web text and the basis for trade articles. The brochure will include blank space so that interested trade allies and organizations can add corporate information in return for their role in helping to ensure the program's success.
3. Case studies to convey the benefits of program participation. Case studies will be prepared as audits are completed and opportunities are identified. Case studies will serve as a stand-alone marketing tools, will form the basis for trade articles, will be used in workshops and for other applications as appropriate.

Where possible, marketing materials will be printed "on demand." This will help achieve several purposes. It will help control costs. It will allow for addition of case study information as it becomes available. It will help ensure that large quantities of marketing materials do not remain in circulation as program funds wind down thereby creating unmet expectations.

C. Customer Enrollment

The intent of customer enrollment is to identify and enroll those customers that offer the most cost effective energy efficiency investments. Global anticipates a two-pronged approach to customer enrollment.

During the program's startup, as is the case with most new programs, applicants will be enrolled on a first-come first-served basis providing that they meet minimum program participation criteria. Initially, a parameter such as total energy costs at the facility will be used to qualify program participants. As we acquire more data about participants and the potential for savings at their facilities, we will transition into a second phase of enrollment, where specific participation criteria is applied to different segments within the food processing industry to account for the different patterns of electric consumption across the segments and the higher or lower potential for energy consumption improvements in the different segments. Parameters such as peak demand, electric energy consumption, plant size, and hours of operation will be taken into consideration.

All enrollees will be interviewed and on-site audit procedures and rebate procedures will be explained. Enrollees will also be informed about the minimum benchmark data required by the program. They will be expected to provide reliable energy benchmark data for historical and peak use periods as well as data describing equipment inventories, energy-consuming equipment and more.

D. Materials

Global proposes to rely on the customer and the services of the market for the procurement, delivery, and installation of equipment. In our experience, there is no shortage of engineers, vendors and installers in the market, and particularly in California markets due to many years of aggressive energy efficiency programs. In addition to the pool of traditional market participants, best practices guides in the areas of motors, compressed air, and other electric systems are readily available free of charge from DOE's and other industrial programs.

Global does not propose to specify qualifying equipment. Instead, Global will utilize the energy auditing process to ensure that potential projects and equipment produce energy savings for the producer and the utility. Therefore, once audits have been performed and benchmarks established, the food processor will be responsible for the acquisition and installation of equipment. Of course all equipment will comply with all applicable codes and standards.

E. Payment of Incentives

There are two variables that must be addressed with regard to incentives: when and how much to pay. Global's proposed Incentive Payment Structure is based on our experience with energy efficiency programs in general and with the current oilfield program. Based on that experience we propose the

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following regimen for promise and payment of incentives, which will be set at 50% of the cost of implemented energy efficiency measures:

Step 1: Customer signs letter of intent to participate in the program, which includes definition of energy efficiency investment criteria in terms of simple payback requirements. Customer agrees to implement energy efficiency measures that meet this criterion. Customer agrees to repay cost of audit if customer does not install or begin the installation of energy efficiency measures within 3 months of completion of the audit.

Step 2: Global conducts audit and presents results to the customer.

Step 3: Customer selects measures for implementation and initiates design and installation of measures.

Step 4: Incentive payments will be made after all equipment is in place and has operated for a suitable period for comparison with benchmark data. For continuous operations, this period of performance (POP) will be deemed satisfactory after three (3) months of operation. In seasonal operations, the POP will be deemed an operating season unless the season becomes long and repetitive and three months are deemed satisfactory by the prime contractor in consultation with appropriate subcontractors.

Global proposes to pay about \$0.08/kWh of energy saved up to 50 percent of the implementation cost. Global will not provide incentive payments that exceed a participant's project cost under any circumstances. Additionally, no single program facility, nor participant, shall receive more than 20% of the total funds allocated from the Commission to the program administrator. Global will be responsible for the certification of the proper installation of any recommended measure before a rebate is issued.

F. Staff and Subcontractor Responsibilities

Global Energy Partners (Global) will be the Prime Contractor and Program Administrator for the proposed program. Global will be directly involved in and responsible for the management of every program task. Global in partnership with selected market actors will manage marketing and other relationships with food processors and will decide on all matters related to participant enrollment, case studies, marketing, etc. The following provides an outline of the relationship between members of the Team and the corresponding areas of responsibility.

Gary Hirsch will serve as the Program Manager interfacing directly with SCE's Program Manager and maintaining overall responsibility for the program and all of its components. Mr. Hirsch and the Global team will be directly responsible for the development of the program definition, the development of the marketing and customer recruitment plan. Mr. Hirsch will be responsible for managing and coordinating the energy audits as well as the performance and review of the technical and economic analysis. He will also be responsible for the ongoing program management and quarterly reporting.

Patricia Hurtado will serve as senior technical advisor. Ms. Hurtado will manage all technical aspects related to the qualification of program participants, identification of energy efficiency opportunities, plant audits, audit reports, and verification of savings. Charles Sopher will serve as the senior food

industry specialist. Dr. Sopher will have responsibility for liaising with the trade allies and with process specialists. He will also share responsibility with Mr. Hirsch for developing marketing themes that are compelling to industry.

Kelly Parmenter will manage all aspects of the audit and analysis process including the development of audit tools, analytical methodologies and reporting format. Dr. Parmenter will sign off on all audit and installation reports prior to incentive payments. Ingrid Bran will assist with customer recruitment and education. Joe Priyjanonda will assist in the necessary research and coordination of information and will be performing the Survey and Qualification of participants as well as conduct some of the plant audits.

Jurgen Strasser will lead the Global team in conducting the audits at the food processing facilities. For those facilities at which compressed air systems are large energy users, Airometrix will have responsibility for conducting compressed air system audits. Scott Stroup, President of Airometrix, will oversee all audits and other work performed by that firm for target compressed air systems.

G. Work Plan and Timeline for Program Implementation

Task 1: Refine Program Definition

In this Task Global will develop the guidelines and parameters by which this program will be operated. To that end, we will further define the program objectives, develop a detailed project workplan, conduct a project kickoff meeting, and develop a project initiation report to include each of the above, as well as other elements that may be required by the CPUC. The project kickoff meeting will be held immediately upon award of the contract.

Task 2: Develop and Implement a Marketing Plan

In this task, Global will develop a marketing plan to promote the program to small- and medium-sized food processors. The objective of the marketing plan is to make food processors and other trade allies aware of the funding for energy audits and installation of energy saving measures available through this program. The marketing plan will include:

- Identification of appropriate trade allies, government agencies, and other organizations with whom the target audience comes into regular contact and development of working agreements with selected organizations.
- Selection of appropriate marketing venues and methods for different industry segments. Global will use a variety of marketing methods to identify and promote the program to potential participants. These methods include direct mail, workshops, articles in trade newsletters, existing websites, E- campaigns and partner/ affiliate marketing.
- Production of promotional material in English and Spanish that will be prepared and distributed by Global and through relevant industry organizations, government agencies, and other

organizations. This promotional material will include a website, a program brochure, case study descriptions, and other material.

Task 3: Develop and Implement a Customer Recruitment Plan

In this task, Global will develop and implement a plan to recruit program participants. We will be working very closely with partner organizations to target the food processors that are likely to require assistance or have known operating problems. The customer recruitment plan will include:

- Definition of the data that needs to be collected to fully characterize each facility and determine its potential.
- Definition of the criteria to determine the eligibility of potential participants. Global will conduct activities and analyses to help better identify those companies that are the most likely to participate in and benefit from participation in this program. Activities at this stage will include additional segmentation of the food processing industry in California.
- Development of simple tools to pre-qualify companies and to gather pre-audit information on those companies that meet qualification criteria.
- Definition of the types of services that will be offered to customers to induce their participation in the program. Cash flow or simple payback analyses for different types of customers will be developed and provided to potential participants as needed.
- Development of customized customer education materials in English and Spanish describing the program and their roles and the opportunities to save money through energy and demand saving projects.
- Development of a customer participation agreement in English and Spanish.
- Development of a “customer care protocol” that will guide our dealings with prospective and actual program participants to ensure that each prospective participant has a reasonable opportunity to participate commensurate with its potential and that all prospective and actual participants receive quality and equivalent treatment.
- Definition of the actual customer recruitment process. We have had great success in our current California program with a simple 3-step customer recruitment approach:
 1. Initial phone contact to develop a relationship and determine interest and preliminary eligibility
 2. Email follow up with educational packet explaining the details of the program and the benefits to the participants
 3. Phone follow up to schedule a phone survey with the appropriate staff member

As part of this task, Global will refine the program tracking database currently in use in our successful CPUC Energy Efficiency Services for Oil Production energy efficiency program for use in this program. That database will be used to collect and track customer recruitment, technical, financial and other analytical results.

Task 4: Conduct Training & Outreach

The Global team will provide training and outreach to potential participants and participants to promote ongoing interest in energy efficiency even after the completion of this program and as a way to recruit additional program participants.

Over the course of the project the Global Team will conduct three workshops for training and outreach purposes. The workshops will focus on two topics. The first topic will include an overview of the audit process and a "top ten" list of the most attractive energy efficiency improvements in the food processing sector. The second topic will include information on recent results from completed audits and on the program process as a way to involve more participants. Each workshop will be held over a 4-6 hour period with invitations sent to food processors in SCE's service area. If necessary, workshops geared to specific industry segments, such as canned fruits and vegetables or beverages will be conducted. The workshops will provide simultaneous translation into Spanish for those participants that need it and if necessary, one of the workshops may be conducted entirely in Spanish.

Task 5: Survey and Qualify Participants

For the oilfield energy efficiency program, Global has designed and successfully implemented a methodology to qualify and survey participants once they have been recruited into the program. This methodology includes the following steps:

1. Determine Initial Eligibility of Potential Participant. The food processor must be a customer of SCE and SoCalGas and must be a small or medium-sized processor.
2. Conduct Initial Phone Survey. The purpose of the survey is to determine if the potential participant seems to have adequate energy saving opportunities and adequate resources to follow through with implementation of recommended measures. The initial survey to qualify a customer will be performed by telephone in English or Spanish depending on the potential participant's desire. In those cases where we suspect extraordinary potential and the customer is not willing or cannot work via telephone, the survey will be conducted onsite. The initial survey will focus on obtaining the following information:
 - Plant size and age of plant
 - Average age of plant equipment
 - Approximate number of motors, air compressors, blowers, chillers, and other equipment
 - Information on energy-related purchasing policies if any
 - Description of current energy management efforts
 - Information on prior audits that may have been completed

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- Information about audit implementation or any recent energy-related capital projects.
 - Historical energy use (13 months of electric bills or request written permission and account number from processor to obtain information directly from utility)
 - Willingness to cost share
 - Investment criteria
 - Willingness to sign a document stating they are not participating in similar programs to obtain funding for this scope of work
 - Willingness to sign a Letter of Understanding once the preliminary opportunities have been identified
3. Qualify and Prioritize Opportunities. Once a customer has been surveyed, the results of the survey will be reviewed and the opportunities qualified and prioritized. Depending on the results of the survey and the prioritization, Global may choose several paths depending on the potential opportunity and the willingness of the customer to adhere to program requirements.
- Proceed with an audit as soon as possible based on staff availability
 - Schedule an audit for a future date
 - Decline to audit based on insufficient potential, customer hurdles, or other criteria.

If enough potential opportunities are identified, a report will be sent to the food processor along with a Letter of Understanding for its signature. This letter commits the processor to allow access to and collaborate with Global's audit team and to implement the cost-effective measures identified as a result of the audit that meet the processor's investment criteria. Based on our experience with the CPUC oilfield program, Global will include a step to eliminate potential double dipping by program participants into more than one ratepayer- or taxpayer-funded public purpose program. We find that the risk of abuse can be minimized through careful participant tracking and coordination among programs. Customers that sign the Letter of Understanding will be required to sign an affidavit or other document declaring that they have received no funds for the same activities from another program or source.

Task 6: Conduct Energy Audits and Economic Analyses

Global's team will conduct comprehensive energy audits of qualifying facilities. Each audit will be conducted over a one to three day period depending on the size and complexity of the facility. For each energy audit we expect to identify those electric energy efficiency opportunities that are specific to the food processing industry in general and to the specific industry segment in particular and other, "cross-cutting" opportunities that may be found in almost any industrial facility.

With regard to cross cutting opportunities, Global's audit will examine and identify opportunities in the following energy and mechanical systems.

- Electric motor systems, including applications for higher efficiency motors, variable frequency drives, magnetic couplings, etc.

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- Compressed air systems, including valve calibration, compressor performance testing, leak repair, use of multiple stage compressors, resizing of piping systems, etc.
- Pumping systems including elimination of throttling valves, resizing of pipes, pump resizing or impellor trimming, new operating controls and other upgraded auxiliary equipment.
- Sensors and controls including a variety of control technologies that improve process management and result in reduced load and/or increased output per unit of energy consumed.
- Lighting including the use of high efficiency lighting sources as well as lighting controls where appropriate.

With regard to solutions that are specific to the food processing industry, we would expect to identify opportunities to apply ozone based disinfectant technologies, membrane technologies and infrared technologies.

Global's program focus is on the adoption of a "systems approach" to optimizing the operation of the electric motor, compressed air, steam, refrigeration, lighting, HVAC, and other process systems. This type of evaluation captures much greater savings than is possible by simply replacing components with more efficient alternatives. Although doing so may have merit, a systems approach provides larger energy savings. The systems approach includes better matching of components (motors, pumps, blowers, fans, compressors, drives, etc.); appropriate application of variable speed drives, control technologies and other technologies; appropriate matching of operational regimens and system performance to loads; reduction or elimination of pipe and duct leaks; and waste heat recovery.

The audit will include an evaluation of the operating conditions, control strategies, maintenance practices, and overall efficiency of all systems that use electricity as well as the performance of individual pieces of equipment, such as motors and compressors. For those facilities where compressed air systems account for a large fraction of the energy consumption, our subcontractor Airometrix will conduct comprehensive analyses of the facilities' compressed air systems. The analysis will include, but is not limited to:

- Air compressor performance testing of each compressor including simultaneous measurement of flow, pressure, and electrical draw under known load conditions.
- Quantification of air system leak volume, consumption to parts of the system which can be isolated, and/or consumption of individual pieces of equipment and processes.
- An evaluation of the pipe sizing and layout, pressure drops through the system, equipment for drying and conditioning air, condensate removal systems, receiver location, all major end uses, and maintenance practices.

Airometrix holds the patent on the flow meter used in the testing process. This LP Flow Meter has a 10-year proven track record allowing facility personnel to quickly, accurately, and reliably test air compressors for output performance, system leak volume and system consumption. A meter will be permanently installed at each facility and will allow facility personnel to test their own system to track

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performance, leak volumes and savings over time. The results will also be used by Global to verify energy savings.

Once the energy efficiency opportunities have been identified, Global will conduct an economic analysis, which will lead to the food processor audit report. The economic analysis will include results in the form of cash flow and simple payback because in our experience, industry professionals are most likely to specify investment criteria in terms of simple payback. In those cases where an audit customer requires results in terms of rate of return or life cycle costs, Global will provide those calculations if the other financial results suggest that good investment opportunities exist.

For each program participant, Global will provide an audit action plan in the form of a report that will outline the steps the participant needs to take in order to install the measures identified in the report. The following items would be included in the report for each recommended energy efficiency measure:

- Project description
- Estimated project installation cost
- Equipment specifications and available vendors
- Estimated energy savings resulting from project
- Cost effectiveness analysis including available incentive
- Cash flow
- Guidelines for available financing
- Steps needed to be taken to implement project and obtain rebate, which include recommended vendors and contractors

The results will then be reviewed to ensure the reported solutions meet the technical and financial criteria. Global will then contact the participant with report results and will discuss implementation, funding and schedule. This will include presentations to senior management to achieve program buy-in on an as-needed basis.

Task 7: Certify Installations

Global will be responsible for the certification of the proper installation of any recommended measures before rebates are issued to the individual participants. Rebates will be issued based on verification of savings for the successful installations.

Task 8: Verify Savings and Pay Incentives

As part of the requirements of this program, we will develop monitoring and verification procedures to properly track the activities of the customers as a result of the audits. In some cases, depending in part on the CPUC's preferences and the nature of planned evaluation efforts, we may use commercially available energy accounting software to help participant facilities monitor pre- and post-energy consumption to help verify results.

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The process for measurement and verification (M&V) of the project results begins during the initial survey process. Our M&V procedures include the following:

- Audit of existing operating conditions before any change of operation or installation of any equipment or software is performed.
- Baseline measurement of energy use at the facility
- Verification of the installation of the energy saving equipment and/or software
- Post-installation measurement of energy use at the facility
- Follow up measurement of energy use three and 12 months after installation

The following is a summary of information collected for each measure installed for any given location:

- Measure descriptions
- Physical location of measures
- Utility account number of the account serving the impacted facility
- Annual baseline energy usage (kWh) at the facility
- Annual post-installation energy usage (kWh) at the facility
- Facility's summer season baseline coincident peak (kW) demand
- Facility's summer season post-installation baseline coincident peak (kW) demand
- Incremental cost of implemented measures
- Useful life of installed measures

The program incentives and rebates will be available on a first-come first-serve basis to qualified participants with up to 50/50 cost sharing for energy conservation measures. Global's experience has been that this percent of cost sharing is high enough to motivate customers. No incentive payment will exceed a participant's project cost under any circumstance. We propose that the project installation cost must be signed off by Global before the work can begin to ensure the project estimated cost and actual costs are within a reasonable range. Global will be responsible for the certification of the proper installation of any recommended measure before a rebate is issued. The rebate will be issued based on verification of actual savings and Global's receipt of invoice funds from SCE's contract manager.

Task 9: Provide Ongoing Program Management & Reporting

The ultimate success of this program greatly depends upon the project plan and implementation methods and procedures used. This task will encompass all strategic, budgetary, program administration, and reporting elements of this program.

Strategic, Budgetary, Program Administration, and Reporting Elements. Strategic direction will be provided to the project team with regard to goals, timelines, expected results, and other general planning factors. The Program Manager will:

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- Develop and update quarterly a project plan showing all tasks, team members' roles, project deliverables, budget requirements, and timelines.
- Institute quality control procedures and frequently check progress with respect to deliverable schedule and quality.
- Be the key interface with SCE's Program Manager, and provide monthly updates regarding progress.

Budget management will be handled by the Program Manager to assure the effective and efficient expenditure of funds, and that such expenditures are in line with technical progress and within the limits set in the project plan. Program administration functions like day-to-day coordination of project team member activities, exception handling, contracting, personnel matters, and invoicing will be handled by the Program Manager. The project plan is a road map that will be used to guide us through the necessary steps. As with every project, the plan will be modified as the project proceeds to address any requirements that are not clearly identified at the start of the project. Nonetheless, the methods for making such changes, for reporting the status of the project, and for approving any changes to the plan should be clear. Progress monitoring of the project is done through status reports and weekly team meetings and discussions. This approach facilitates the resolution of issues and ensures that implementation efforts conform to the plans outlined in the planning documents.

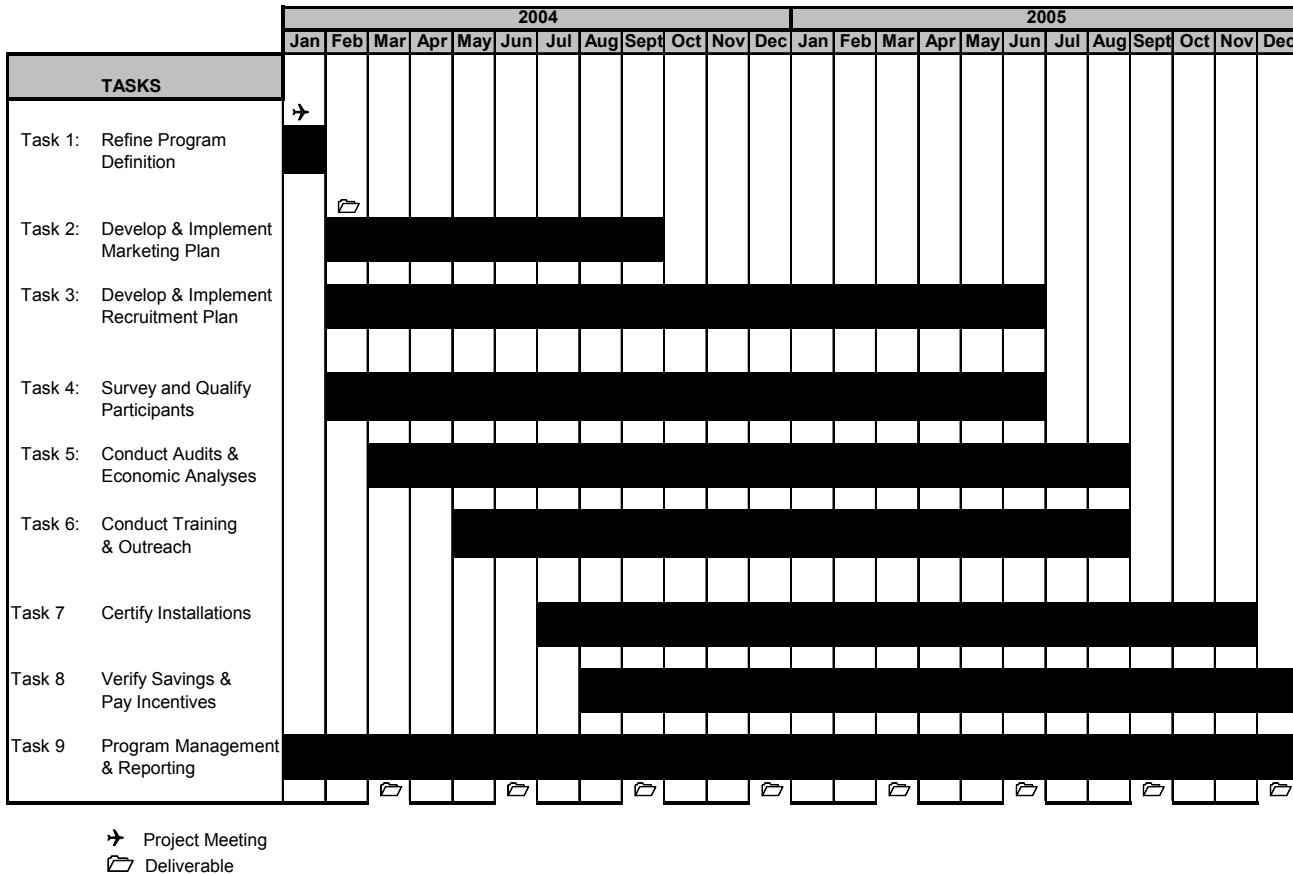
Global attempts to come as close as possible to the target dates and structure the program implementation around these dates. If the project is delayed unexpectedly, SCE will be consulted to evaluate the priorities in order to move the project forward in a positive manner.

Timeline

We are proposing to conduct the project over a two year period beginning on January 1, 2004 and concluding December 31, 2005. Global Energy Partners is experienced in successfully managing projects on schedule and within budget requirements. The following schedule of deliverables is proposed:

Deliverable 1—Marketing Plan:	February 28, 2004
Deliverable 2—Customer Recruitment Plan:	February 28, 2004
Deliverable 3—Quarterly Status Reports (11):	Starting April 15, 2004

Proposed Program Schedule



Section III. Customer Description

A. Customer Description

Processed foods are becoming an ever-growing portion of the consumer's grocery bill. Today's consumer spends less of his food budget on meat, vegetables, fruits, eggs and dairy, and more of their food budget on higher value ready-to-eat or "ready-to-heat" foods. Higher value-added foods include prepared foods, nonalcoholic beverages, table spreads, and confectionery products. In this category, at least 40% of the industry shipment value is added through energy intensive manufacturing.³

In the food processing industry, in addition to traditional "building-like" uses of energy, which account for less than ten percent of energy consumption, energy is used for preservation, packaging, cooking,

³ Energy Usage In The Food Industry, Dr. M. Okos, Dr. N. Rao, S. Drecher, and J. Kozak, October, 1998, ACEEE.

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refrigeration and storage. Preservation requires strict temperature controls. Safe and convenient packaging is energy intensive and some of the most modern packaging systems make use of sterile techniques and electro-chemical changes. Food storage typically involves freezing or dehydration, both large users of energy, with freezing depending largely on electricity and drying depending largely on fossil fuels. In the past, drying systems focused on maximizing throughput regardless of energy inputs. More modern systems can reduce drying energy by as much as 40% using simple techniques such as air recirculation and heat recovery. Of the energy used to process foodstuffs, about half is used to drive motors and one quarter is used for cooling and refrigeration.⁴

The food processing industry (SIC 20 and NAICS 311/3221) includes companies that manufacture or process meat products; dairy products; canned, frozen, or preserved fruit and vegetables; grain mill products; bakery products; sugar and confectionery products; fats and oils; beverages; and miscellaneous food products (canned and frozen fish; coffee, snacks, ice and pasta). California currently produces in excess of \$50 billion per year in food products. As can be seen in the table below, more than 25 percent of the industry output is produced by the beverage industry segment, which also has the largest number of establishments and the second highest employment.⁵ Of these beverage establishments, the wine industry account for about 62 percent. The canned, frozen, and preserved fruit and vegetables segment produces more than 20 percent of the industry output and has the largest employment of all segments.

California Food Processing Industry – 1996

SIC	Food Processing Segment	Establishments	Jobs	Value of Shipments (Million \$)	Share of Value (%)
201	Meat Products	230	17,734	3,576	8.5
202	Dairy Products	203	13,503	4,081	9.8
203	Preserved Fruit & Vegetables	541	47,030	8,800	21.0
204	Grain Mill Products	212	7,907	2,863	6.8
205	Bakery Products	635	22,974	2,933	7.0
206	Sugar & Confectionery Products	164	10,591	2,489	6.0
207	Fats & Oils	65	2,424	1,348	3.2
208	Beverages	662	31,927	11,351	27.1
209	Miscellaneous	591	22,016	4,417	10.6
	Total California	3,303	176,106	41,858	100.0

⁴ Ibid

⁵ California Energy Commission, Commission Website (www.energy.ca.gov/pier/indust/food_processing.html)

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California's food processors account for more than 11 percent of the electricity consumed by industrial customers in the state.⁶ The canned, frozen, and preserved fruit and vegetables, dairy products, and beverages segments account for 58 percent of the electricity used in the food processing industry in California⁷.

As previously discussed in Section I, close to 6,000 food processors are registered in the State of California. About 150 to 200 of those are very large food processors supported by large corporate engineering departments that continually manage energy costs, identify energy efficiency opportunities, and have access to capital to invest in such activities. Another 3,500 to 4,000 are extremely small facilities, typically one-room processors of specialty foods, which offer very small energy efficiency potential. There are between 1,800 to 2,400 moderately sized food processors in California that utilize considerable amounts of energy but lack the resources and expertise to identify and evaluate energy efficiency opportunities. Of these about 1,400 are served by PG&E and about 750 are served by SCE and SoCalGas. These food processors may have more than one plant in the area of interest. The small- and medium-sized food processors served by SCE are the targets for the proposed program.

These processors may be classed as medium-sized but they can experience total annual energy costs of \$50,000 to \$500,000 per facility. Although these annual energy costs may seem fairly high to a novice observer, they are often deemed a very low priority to the food processor that spends millions of dollars for raw products, labor and packaging materials in the same processing facility. The energy costs to these processors are simply overshadowed by costs of raw product, labor and packaging.

For the above reasons (mainly lack of interest by the processors) little attempt has been made to address energy efficiencies in this moderately-sized food processing segment. Prior attempts have been aimed at specific items such as pump motors, lighting, etc. Few attempts have been made to enhance total energy efficiency throughout a processing facility in California. The existing programs, such as PG&E's and SCE's Standard Performance Program attract the larger industries including food processors and there has been very little participation, if any, by small- and medium-sized food processors.

Several trade, local, and regional organizations exist that have strong contacts with small- and medium-sized food processors. Global has already contacted a number of them and has received their commitment to participate in the program to promote it to their members. Some of these organizations include:

- Local or Regional Economic Development Corporations, such as the Kern County, Tulare County, Los Angeles, Orange Economic Development Corporations.
- The California League of Food Processors
- The Dried Fruit Association of California

⁶ California Energy Commission, Commission Website (www.energy.ca.gov/pier/indust/food_processing.html)

⁷ California Energy Commission, Commission Website (www.energy.ca.gov/pier/indust/food_processing.html)

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- The American Frozen Food Institute
- The Processed Tomato Foundation
- The California Olive Industry Association
- The UC Davis Agriculture Extension Service
- The Chambers of Commerce of Cities and counties where food processors are widely present, such as Fresno and others

B. Customer Eligibility

All small- and medium-sized California food processors served by SCE that are not supported by corporate research and development departments are eligible to participate in the program. These processors typically have total annual energy expenditures between \$50,000 and \$500,000. Participants may either be incorporated or proprietorship operations as long as they are not a division of a national or multinational company.

C. Customer Complaint Resolution

Unlike many companies today, telephone calls at Global continue to be routed to staff through a real live receptionist. Calls with questions about the program and program participation will be routed to a primary or secondary contact, one of whom will be available at all times.

Throughout the course of this study and completion of energy efficiency installations, a focused attempt will be made to avoid complaints and discuss all items before participants feel a formal complaint is necessary. Although we like to think that good program management and staff selection can avoid complaints, they invariably arise, particularly in regional programs that serve large numbers of customers and that aim to maximize cost effectiveness. Global views complaints as opportunities to learn how to do a better job of serving our customers.

Based on that philosophy, complaints are routinely routed to responsible individuals with the authority to resolve complaints. In this case complaints about the Program or about staff will be routed directly to Global's Program Manager or Assistant Program Manager or, in their absence, to John Kotowski, Global's President.

In the event that a complaint does arise that is very difficult to resolve via normal Program channels, participants will have agreed before joining the program that they will settle complaints by arbitration under California Arbitration Rules.

D. Geographic Area

The proposed program targets small- and medium-sized food processors in SCE's service territory. These food processors are mostly located in the southern area of the state of California.

Section IV. Measure and Activity Descriptions

A variety of measures will be implemented as part of this program depending on the participating facilities' characteristics and needs. The processes used in the different industry segments vary widely. While some facilities use large amounts of steam for heating and boiling operations, others use mostly refrigeration for cold or controlled atmosphere storage or freezing of their products. Some facilities, such as those that produce beverages have processes that use mostly electricity with little natural gas consumption; others like the preserved fruit and vegetable facilities, use large amounts of electricity and natural gas in their operations.

Through the audits conducted as part of the program, we will identify energy efficiency measures that will likely fall within the following categories:

- Electric motor systems, including applications for higher efficiency motors, variable frequency drives, magnetic couplings, motor controls, etc.
- Compressed air systems, including valve calibration, compressor performance and operation improvements, leak repair, use of multiple stage compressors, resizing of piping systems, etc. more.
- Pumping systems including elimination of throttling valves, resizing of pipes, pump resizing or impellor trimming, new operating controls and other upgraded auxiliary equipment
- Refrigeration systems, including compressor efficiency and operation improvements, waste energy recovery, chilled water distribution piping insulation, leak repair, and other
- HVAC systems including high efficiency chillers and AC units and HVAC system controls
- Sensors and controls including a variety of control technologies that improve process management and result in reduced load and/or increased output per unit of energy consumed
- Lighting including the use of high efficiency lighting sources as well as lighting controls where appropriate
- Specific process technologies, such as ozone based disinfectant technologies, membrane technologies and infrared technologies

A. Energy Savings Assumptions

Given the variety of measures that will be implemented as part of this program, and the fact that participants will bundle cost-effective measures to create projects that pass their investment criteria, it is very difficult to estimate the expected savings on a measure-by-measure basis. We propose to estimate instead the expected savings for an average facility and use that information to estimate the overall program savings.

The table below summarizes the expected savings at the system level for typical energy efficiency measures installed at food processing facilities. This information has been gathered through the 14 years of operation of our Agriculture and Food Technology Alliance and the experience of our subcontractor Airometrix performing compressed air systems audits at a variety of industry facilities including food processing facilities. Depending on the type of facility, these estimated savings at the system level can translate into savings between 8 to 20 percent for the facility as a whole.

Estimated Energy Savings for Food Processing Systems

System/Operation	Estimated System Savings (%)
Pumping	15 (1)
Conveying	10
Motors	15
Lighting	20
HVAC	20
Refrigeration	30
Compressed Air	36
Waste Heat Recovery	30
Waste Energy Recovery (from cold water, combustible products, and digester gasses)	35

(1) Can be up to 35% for older systems.

Assessment of medium-sized food processing facilities conducted by the Industrial Assessment Centers of the U. S. Department of Energy – Office of Energy Efficiency and Renewable Energy in California have shown savings in electricity consumption of 4 to 18 percent and savings in electric peak demand of 4 to 16 percent at the facility level. These savings result from the implementation of a variety of measures identified in a one-day assessment. The proposed program includes more comprehensive audits that will likely identify additional cost-effective measures and therefore will result in higher energy savings.

From the information presented above and in order to take a conservative approach we will assume that energy savings of at least 10 percent in electrical energy consumption and peak demand will be achieved throughout the participating facilities.

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The small- and medium-sized food processing facilities that were described as having total annual energy expenditures of \$50,000 to \$500,000 have the following energy consumption characteristics, depending on the processes employed:

- Peak Demand: 80 kW to 1,300 kW
- Annual Electricity Consumption: 200,000 kWh to 3,500,000 kWh

For the purposes of estimating the energy savings at an average facility, we will assume that the average facility has a peak demand of 400 kW and consumes annually 1,500,000 kWh of electricity. As such, the average facility will have minimum savings of:

- Average Facility Demand Savings: 40 kW
- Average Facility Annual Electricity Savings: 150,000 kWh

The expected costs associated with the implementation of the measures needed to obtain these savings vary from \$2,000 to \$60,000 depending on the measures installed. We will assume an average implementation cost of \$24,000.

B. Deviations in Standard Cost-effectiveness Values

Net-to-Gross Ratio. We will use a Net-to-Gross ratio of 0.83 to evaluate this program as indicated in the Energy Efficiency Policy Manual Version 2 for Energy Management Services, including audits (for small- and medium-sized customers).

Effective Useful Life. The Energy Efficiency Policy Manual Version 2 indicates useful lives that vary between 15 and 20 years for the type of measures that will be implemented in this program. To take a conservative approach, we will use an average useful life of 15 years.

Incremental Measure Cost. The measures implemented at each facility will vary on a case-by-case basis. Since measures will be bundled and to be conservative we will use the full cost of the measure for the incremental measure cost as described above.

C. Rebate Amounts

Global proposes to provide rebate amounts based on the actual energy savings of the projects. Global will provide incentives for qualifying projects for participants on a first-come first-serve basis. In our experience, 50/50 cost sharing programs for energy efficiency measures work very well. Global will provide incentives of about \$0.08/kWh based on actual savings up to 50 percent of the project cost for equipment and installation. Global will not provide incentive payments that exceed a participant's project cost under any circumstances.

D. Activities Descriptions

The proposed program includes activities that are not directly expected to produce measurable energy savings. These activities include customer recruitment, energy audits, customer outreach and training, installation certification, and EM&V activities. While these activities do not directly result in energy savings, the proposed program will not achieve its goals without these activities.

Section V. Goals

Based on the information included in part A of Section IV and Global's experience with similar programs we estimate the following goals for the program.

Proposed Program Goals

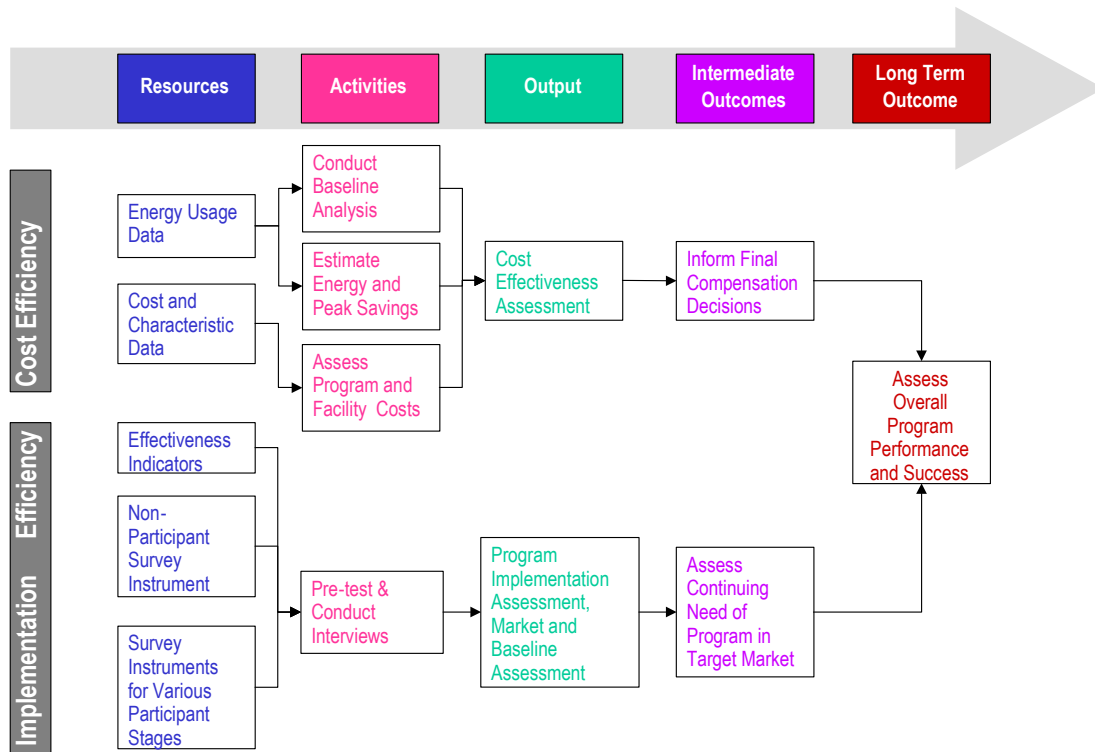
Program Goals	2004	2005	Total
Customer Recruitment (number of facilities)	250	375	625
Workshops	2	1	3
Survey/Qualifications (number of facilities)	40	60	100
Energy Audits (number of facilities)	18	28	46
Certifications of Installations (number of facilities)	18	28	46
Peak Demand Savings (kW)	597	930	1,527
Electricity Savings (kWh)	2,241,000	3,486,000	5,727,000

The peak demand and energy consumption savings are estimated in the workbook using a 0.83 net-to-gross ratio.

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

The primary goal of the EM&V effort is to provide an assessment of the level of performance and success of the proposed program. Performance will be achieved through two activity areas: cost efficiency and implementation efficiency. Global's proposed methodology is based on the current EM&V workplan for its current oilfield energy efficiency program. The diagram shown below describes the relationships among program evaluation elements and shows how the various pieces – resources, activities, output, intermediate outcomes, and long-term outcomes – fit together. The EM&V effort we propose is in accordance with the requirements contained in the CPUC Energy Efficiency Policy Manual, Version 2. The figure below includes the requirements outlined in Section 6 of the Manual.

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For the cost efficiency analysis, the EM&V contractor will conduct tasks such as the following:

1. Evaluate Methodology to Calculate Energy Savings. Conduct an initial review, or audit, of Global's energy savings estimation methodology.
2. Provide Interim Energy Savings Estimates for Participants. Once a critical mass of participant's data has been collected, the EM&V contractor will review Global's energy savings calculations, according to Option B of the International Performance Measurement and Verification Protocol (IPMVP) Manual. Global anticipates that data from five to ten participants will be a sufficient to conduct this review.
3. Conduct Cost-Effectiveness Analysis. At the end of the Program, the EM&V contractor will determine the Program's cost effectiveness using the relevant tests outlined in the Energy Efficiency Policy Manual, Version 2 August 2003.
4. On a monthly and quarterly basis, coordinated with Global's reporting schedule, the EM&V contractor will provide memos documenting our progress and findings to date. The EM&V contractor will report overall findings in a final report delivered at the end of the evaluation.

To complete these tasks, the EM&V contractor will use the following resources:

- Energy Usage Data. Energy usage data will be provided by Global and will include pre- and post-implementation operating conditions, energy, and demand usage for each participating facility.

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- Facility Characteristic Data. Facility characteristic data will be provided by Global and will include verification, description, and location of installed energy-saving equipment
- Cost Data. Global will provide the following cost data:
 - Costs associated with installed measures
 - Program administration costs
 - Any costs paid by the facility owner
- Utility Avoided Cost Data. To conduct the cost-effectiveness analysis, the EM&V contractor will obtain avoided costs for SCE and SoCalGas. If this information is not readily available, the EM&V contractor can use general avoided costs from the workbook.
- Load Shapes. The EM&V contractor will obtain load shapes for the facility to conduct the cost-effectiveness analysis. Global will conduct short-term, pre and post load measurements. The EM&V contractor will determine through interviews with the food processors how the load is likely to vary with time, if at all, and incorporate these variations in the cost-effectiveness analysis to account for temporal variations in avoided costs.

To complete these tasks, the EM&V contractor will conduct the following activities:

- Conduct Baseline Analysis. Baselines will be created for all participating facilities, using the pre-implementation operating conditions, demand, and energy usage for each. These data will be collected and provided by Global. To the extent possible, the EM&V contractor will also create baselines for representative groups using secondary data sources or aggregating data for subsets of participants.
- Estimate Level of Energy and Peak Demand Savings Achieved. One of the primary goals of this evaluation is to assess the energy and demand impacts of the Program. The EM&V contractor will review Global's calculation methodologies and relevant data. The EM&V contractor will also review the appropriateness of the methodologies. This review can be conducted prior to the estimation of the first participant's savings if Global has set up these processes.
- Based on the data provided by Global, the EM&V contractor will estimate the energy savings and peak demand impact of the Program in accordance with CPUC mandates. Utilizing the baseline and post-installation data collected from power measurements, dynamometers, and flow meters, the EM&V contractor will estimate the energy savings achieved by the installation of energy-efficiency measures. Depending on the degree of data manipulation, it may be necessary for the EM&V contractor to use a sampling approach to determine energy impacts.

For the implementation efficiency analysis, the EM&V contractor will conduct tasks such as:

1. Design Surveys. The EM&V contractor will design surveys for participants and non-participants.

Energy Efficiency Program for California's Food Processors in SCE's Service Area

2. Conduct First Half of Surveys. During the second quarter of 2004, the EM&V contractor will survey half of the sample facilities with an attempt to include facilities from different industry segments. Given the hard-to-reach nature of these customers, the EM&V contractor may interview several key industry stakeholders such as vendors and industry representatives.
3. Write Memo of Findings. After conducting the first half of the interviews, the EM&V contractor will write a memo on the preliminary findings. This memo will contain preliminary recommendations for implementation improvement.
4. Conduct Remaining Surveys. During the fourth quarter of 2004, the EM&V contractor will survey the second half of the sample facilities and, if useful, other stakeholders.
5. Report on Findings. On a monthly and quarterly basis, coordinated with Global's reporting schedule, the EM&V contractor will provide memos documenting the implementation efficiency progress and findings to date. The EM&V contractor will report overall findings in a final report delivered at the end of the evaluation.

To complete these evaluation tasks, the EM&V contractor will develop the following tools:

- Effectiveness Indicators. Before designing survey instruments, the EM&V contractor will create indicators of effectiveness that can be utilized in both participant and non-participant surveys, including satisfaction with marketing materials, recruiting process, and rebate levels. Specifically, the EM&V contractor will design the surveys so that they indicate whether the target market will participate in the Program in the future and which incentives were the primary motivators for participation.
- Non-Participant Survey Instrument. The EM&V contractor will work with Global to design a survey instrument for food processors who were informed about the Program, but who either have not yet chosen to participate or have decided to not participate. The EM&V contractor will obtain a list from Global of organizations that were targeted in the customer recruitment process. The survey instrument will include topics such as:
 - How they heard about the program
 - What were the more and less effective areas of the recruiting process
 - How they assessed the workshops (if attended)
 - Which Program features interested them
 - Whether they have chosen to not participate or are still undecided and why
 - What level and type of incentive would have led them to participate or would be likely to lead them to future participation
 - What energy efficiency measures they have implemented since hearing about the Program and, if any, whether the decision to do so was influenced by the Program
 - What equipment they had prior to hearing about the program
 - Any suggestions they may have for program improvement

Energy Efficiency Program for California's Food Processors in SCE's Service Area

- Participant Survey Instrument. Global and the EM&V contractor will design a survey instrument for program participants to understand their satisfaction with both the process and the installed energy-efficiency products. The survey will ask questions such as:
 - How they heard about the program
 - What were the more and less effective areas of the recruiting process
 - How they assessed the workshops (if attended)
 - Which program features interested them
 - What ultimately made them decide to participate
 - Whether they have implemented any other energy efficiency measures since hearing about the program
 - What energy efficiency measures they had before installing the equipment
 - How satisfied they are with the installed equipment
 - Any suggestions they may have for program improvement
- As part of the participant interviews, the EM&V contractor will ask what measures were installed under the program and confirm that those stated are the same ones in the documentation provided by Global.
- Other Stakeholders. The EM&V contractor will design an interview guide for various other stakeholders, such as equipment vendors and industry representatives. It will be important to interview representatives of these groups because of the likely difficulty of completing interviews with a representative sample of food processors and the ability of these groups to provide information about baseline energy-efficiency practices and measures in the food processing industry. Global proposes that these interviews address broad issues that food processors face and possible barriers to program participation.

To complete these tasks, the EM&V contractor will conduct a series of interviews. Interviewees will be selected from lists provided by Global and other industry sources. The EM&V contractor will select a random sample of non-participants for these interviews. The EM&V contractor will conduct interviews via phone whenever possible, but email submission will be accepted if that is their preference. The number of surveys conducted by the EM&V contractor will be consistent with the California and International Performance Measurement and Verifications Protocols.

Potential EM&V contractors:

Quantec Consulting

6229 SE Milwaukie Avenue
Portland, Oregon 97202

Quantec is the approved EM&V subcontractor for Global's current CPUC oilfield energy efficiency program.

Nexant, Inc.

101 Second Street, 11th Floor
San Francisco, California 94105-3672

Nexant provided EM&V services to the California Energy Commission (CEC) Peak Load Reduction Program. Nexant also performed EM&V work on many of the CEC program elements funded under AB970, SB5X and AB29X.

Section VII. Qualifications

A. Primary Implementer

Global combines the forces of two of the nation's leading energy organizations—the Electric Power Research Institute (EPRI) and DMJM H+N. Known throughout the world as cutting-edge science and technology consortia, EPRI has partnered with DMJM H+N to play a major role in the energy industry. In addition, Global recently acquired the NEOS Corporation, a California-based consulting firm with over 17 years' experience and a recognized leader in the development and application of energy-related strategies and technologies.

EPRI brings world-class expertise in energy efficiency technology research and development, utility system operations, technology applications analysis, cost benefit/economic analyses, and market transformation studies. DMJM H+N, one of the world's premier engineering management and construction companies, adds critical expertise in managing major public and private energy-related programs. Global provides in-depth project management, program design, development, administration, and performance assessment experience. Combining these exceptional capabilities with experience related to large energy-efficiency projects and in the commercialization of energy technology, results in an integrated team of unparalleled capabilities.

Global is headquartered in Lafayette California, with affiliate offices nationwide. Over the past 17 years the Global team has attained an international reputation for its work in the energy efficiency, renewable energy and distributed generation fields. Global employs professionals trained in engineering, economics, planning, environmental science, computer science, business administration, marketing, and physical and social sciences.

A thorough understanding of both public and private sector operations enables Global to focus on workable solutions and implementation. This means not merely studying a client's problems, but offering innovative and technically sound solutions, and assistance in implementing those solutions. Global brings a fresh approach to the restructured energy industry – an approach that focuses on overcoming market barriers and making efficient technology attractive to energy users. Global has extensive expertise in the following areas:

- Managing and Administrating Programs
- Developing strategic and tactical marketing and management plans

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- Transforming the energy marketplace
- Performing quality engineering and economic analyses
- Solving large energy consumers’ challenges
- Minimizing environmental impacts of energy use
- Supporting energy education and training
- Providing technical regulatory assistance

Global has a proven, long-term track record of successful management, implementation and administration of large energy related programs. The following is a brief synopsis of the most relevant projects for this proposal.

Global Energy Partners, LLC – Project Summaries

Energy Efficiency Study Category	Client Name Name of Study Timeframe	Project Description
Program Management and Implementation	California Public Utilities Commission Energy Efficiency Program for Oil Producers in Southern California (2002 - present)	Global was selected by the CPUC to manage a rebate program targeted toward small to medium size onshore producers who are willing to optimize their pumping equipment and reduce electric consumption. The incentive program covers up to half of the investment required to make corrective actions. Global’s team of field specialists is helping interested producers reduce their electricity consumption and lower their operation expenses. Global is estimating that at least 100 wells may qualify for this rebate program. The program is targeting energy efficiency measures including: <ul style="list-style-type: none"> • Well pumping optimization through pump-off controllers • Load balancing on rod pumps • Proper sizing of water injection pumps • Variable frequency prime movers Global’s program is designed to achieve a minimum of 1.76 MW in electric peak demand savings through the implementation of these energy efficiency measures.

Global Energy Partners, LLC – Project Summaries

Energy Efficiency Study Category	Client Name Name of Study Timeframe	Project Description
Demand Response Program and Evaluation Assessment	California Energy Commission Peak Load Reduction Program (2001 - 2002)	Global implemented and evaluated a program throughout the state of California that delivered demand curtailments in response to curtailment calls initiated by the state's electrical grid authority. Global developed the program around its Power-pact brand name and associated website www.power-pact.com . The program addressed strategies that reduce power demand attributable to air conditioners, lights, motors and other electrical loads from commercial, manufacturing and state/local government facilities. Measurement and verification of savings was accomplished through the assessment of online utility meter data, and engineering simulation models were run to validate the demand-response impacts. An automated notification platform was developed using web-based applications and telecommunication devices that activated both voluntary and automatic curtailments during peak demand periods. Global's system also provided pricing signals to customers in support of the State's pilot real-time pricing program. The program was funded through a grant from the California Energy Commission per Assembly Bill 970 and Senate Bill 5X.
Project Administration and Operation	San Diego Regional Energy Office (SDREO) Demand Reduction Program (2002 - 2003)	Under subcontract, Global supported the implementation of SDREO's 2002 Energy Management Program for the California Energy Commission. In support of SDREO's 8 MW demand reduction goal, Global's responsibilities included marketing and customer recruitment, engineering analysis, IT infrastructure development, customer hardware and software, equipment design and installation, customer training, testing and verification, and ongoing support.

Global Energy Partners, LLC – Project Summaries

Energy Efficiency Study Category	Client Name Name of Study Timeframe	Project Description
Project Administration and Operation	California Independent System Operator (ISO) Demand Reduction Initiative (2001)	Global served as a load reduction aggregator for the California ISO in their Demand Relief Program (DRP) for Summer 2001. Global reserved 15 MW of demand relief for the DRP, relying on three major customer bases in the commercial, industrial, and institutional sectors. Global established itself as a load aggregator under the auspices of the CEC demand response program. Since many of the customers participating in the CEC program were also interested in receiving financial incentives in exchange for their voluntary curtailments, their inclusion in the ISO DRP program was a natural extension of the overall demand relief initiatives in California during 2001.
Energy Auditing	Department of Energy (DOE) Federal Energy Management Program (FEMP) (2000 – present)	Global was selected by the Department of Energy (DOE) to work with Federal Agencies to identify cost-effective energy efficiency, water conservation, and renewable energy measures that could be undertaken and developed into projects. Global provides SAVEnergy survey services in four of the six DOE regions and has provided these services to a variety of different federal agencies. Under the SAVEnergy program, Global provides comprehensive building energy surveys, water conservation surveys, renewable energy screening, and analyses of other specific energy consuming systems such as HVAC, lighting, heat pumps, motors, and boilers. Global also provides energy engineering and economic analysis, identification of energy efficiency measures, life cycle cost analysis, and project cost estimating of recommended measures.

Global Energy Partners, LLC – Project Summaries

Energy Efficiency Study Category	Client Name Name of Study Timeframe	Project Description
Program Marketing and Management	Electric Power Research Institute Technology Application Centers (2001 - present)	Global manages, operates and provides technical direction for seven key EPRI end-use technology application centers throughout the United States. They are: <ul style="list-style-type: none"> • Agriculture and Food Technology Alliance (AFTA) • Healthcare • Manufacturing Industries • Municipal and Industrial Water & Wastewater • Process Industries • Commercial and Residential Markets • Market-Driven Demand Response The AFTA develops products and services to facilitate the introduction of innovative electrotechnologies in the Agriculture and Food Processing industries. It advances solutions to the challenges that these industries face, including low operating margins, the need for enhanced product quality, environmental concerns, and increasing regulatory demands. The center has conducted extensive research on and demonstrations of energy efficient technologies for food processing facilities, including the landmark “Food Industry 2000: Food Processing Opportunities, Challenges, and New Technology Applications.”
Program Assessment	CALMAC Summary Study of California 2001 Energy Efficiency Programs (2002 - 2003)	Global conducted an assessment of the program impacts, budgets, cost effectiveness and savings persistence across all programs offered by various entities within California during the program year 2001. The Summary Study was funded by the California Measurement Advisory Council (CALMAC). Broad-based and comprehensive, it covers all programs funded by various sources during the 2001 program year, including the public goods charge, AB 970 and SB 1 5X.

Global Energy Partners, LLC – Project Summaries

Energy Efficiency Study Category	Client Name Name of Study Timeframe	Project Description
Integrated Resource Plan	Great River Energy Assessment of Energy and Capacity Savings Potential (2003 - present)	Global is conducting a comprehensive assessment of energy efficiency potential for this generation and transmission cooperative utility serving most of rural Minnesota. In addition, Global's economic analysis will provide direct input to Great River's integrated resource plan that it is filing with the Minnesota Department of Commerce. The assessment also includes development of avoided capacity and energy costs, using various production costing models.
Energy Efficiency Potential	Hawaiian Electric Company (representing the 3 investor-owned utilities in Hawaii) Assessment of Energy Efficiency Potential (2003 - present)	Global is conducting an assessment of energy efficiency and demand response resource potential for Hawaii. The assessment is a prelude for integrated resource plans (IRP) that will be developed by each of the utilities per regulatory requirements.

Global Energy Partners, LLC – Project Summaries

Energy Efficiency Study Category	Client Name Name of Study Timeframe	Project Description
Potential Assessment	Alliant Energy/Interstate Power & Light (IPL) IPL Energy Efficiency Plan Filing (2002 - present)	Global prepared a long-range energy efficiency plan for the IPL subsidiary of Alliant Energy as part of their regulatory requirements for the Iowa Utilities Board (IUB). The project involved developing estimates of long-term energy efficiency program savings for all customer segments, including residential, commercial, industrial and agricultural. Savings potential forecasts included technical, economic and achievable for these customer segments. Included in the assessment was a detailed specification of the program designs, a comprehensive cost-effectiveness analysis, and generation of savings goals and programmatic budgets. Project support currently entails regulatory tasks related to completion of data requests from the IUB and the various intervenor groups, as well as expert testimony by principal Global staff.

Global Energy Partners, LLC – Project Summaries

Energy Efficiency Study Category	Client Name Name of Study Timeframe	Project Description
<p>Energy Efficiency Program Evaluation</p>	<p>New York Energy Research and Development Authority (NYSERDA)</p> <p>Market Characterization, Assessment and Causality Project</p> <p>(2003 - present)</p>	<p>Global is part of a consulting team headed by Summit Blue Consulting under contract to NYSERDA. The market characterization, market assessment and attribution/causality (MCAC) work effort is designed to contribute to the extensive evaluation effort that is being undertaken for NYSERDA's New York Energy Smartsm program portfolio, which includes 42 energy efficiency programs covering all sectors and end-use markets. The Market Characterization (MC) work focuses on characterizing energy markets and providing the background information required to define programs, delivery concepts, and target markets, and potential for different types of programs. The Market Assessment (MA) work tracks changes in markets with a specific focus on market indicators that might be impacted by program offers; as such, this effort can be used to track program progress. The Attribution/Causality (AC) work focuses on identifying the impacts of the program interventions beyond what would have happened without the program. Often termed measurement of "net impacts," this information is useful in making program decisions, including further investment, program exit decisions, and other policy and funding decisions.</p>

Global Energy Partners, LLC – Project Summaries

Energy Efficiency Study Category	Client Name Name of Study Timeframe	Project Description
Technology Assessment and Screening	Iowa's Investor-Owned Utilities (Alliant, UtiliCorp, MidAmerican, United Cities Gas) Assessment of Energy and Capacity Savings Potential in Iowa (2001 - 2002)	Global conducted this collaborative study in order to enable each of the four sponsoring utilities to have the necessary foundation that would allow for them to develop individual energy efficiency plans, consistent with each company's goals and objectives. The assessment involved analysis of over 400 energy efficiency measures, spanning the residential, commercial and industrial sectors.
Program Review and Benchmarking	Alliant Energy/ Wisconsin Power & Light Company (WPL) WPL Shared Savings Program Review (2002 - present)	Global conducted a review of Alliant Energy's Wisconsin Shared Savings program. The program provided commercial, industrial and agricultural customers with a turnkey performance contracting service. Customers enjoyed the benefits of energy saving investments with the proceeds of the savings used to pay back the capital cost of the investments. In the review, Global conducted a benchmarking assessment, comparing Alliant's program efforts to similar offerings from utilities around the country. In addition, Global conducted an economic analysis of the program using cost-effectiveness software tools. The project culminated in the development and delivery of expert testimony by Global principal staff during the November 2002 rate hearings before the Wisconsin Public Service Commission.

Global Energy Partners, LLC – Project Summaries

Energy Efficiency Study Category	Client Name Name of Study Timeframe	Project Description
Potential Study	Keystone Institute Assessment of Energy Efficiency Potential (2001 - 2002)	Global conducted an assessment for the non-profit Keystone Institute of the role of demand-side management (DSM) in reducing US greenhouse gas (GHG) emissions. The primary objective of this study was to estimate the likely changes in GHG emissions that would occur with the implementation and full operation of DSM programs and initiatives nationwide. The study also assessed the impact of policies that impose a carbon tax. To offset the inherent uncertainty of future energy use projections, the study developed multiple scenarios.
Measure Assessment and Screening Assessment of Program Delivery	Geothermal Heat Pump Consortium GEO Merit Program Support (1996)	Global provided on-call marketing assistance to the Geothermal Heat Pump Consortium (GHPC) and its members in accelerating the market development of geothermal heat pumps. Assignments included proposal review for utility geothermal program demonstrations and working with individual utilities to help develop new programs and initiatives to increase the market for geothermal heat pumps.
Assessment of Program Delivery	Sempra Energy Solutions Segmentation Studies and Market Planning (1997-98)	Global supported Sempra on various market transformation studies that helped shape the marketing strategies for this new energy service company. The studies focused on assessing market and customer-specific data on energy consumption, customer needs and issues, and decision-making processes. Work also involved the development of pricing and risk management strategies. Global also developed a software tool for Sempra that simplified the application of the DOE-2 engineering simulation model. The tool is being used to assess the cost-feasibility of various energy efficiency products and services.

B. Subcontractors

Airometrix

Airometrix Mfg., Inc. provides training, consulting, testing, and auditing services to industrial customers throughout the United States and Canada. Airometrix specializes in conducting comprehensive audits of compressed air systems using a patented flowmeter that permits testing of compressor performance at the facility, accurate determination of system leak volumes, and measurement of air consumption within the plant. The LP Flow Meter manufactured by Airometrix has a 10 year proven track record allowing facility personnel to quickly, accurately, and reliably test air compressors for output performance, system leak volume and system consumption. Airometrix is not affiliated, directly or indirectly, with any equipment manufacturers and does not sell or promote any specific technologies. Airometrix has conducted numerous audits of compressed air systems in food processing facilities. Some of the relevant current projects are summarized below:

Airometrix – Project Summaries

Energy Efficiency Study Category	Client Name Name of Study Timeframe	Project Description
Compressed Air System Assessment	Florida Power & Light Company (FPL) Compressed Air System Analysis & Compressor Performance Testing; Peak Load Reduction (2003)	Airometrix Mfg., Inc. was contracted to conduct compressor performance tests and a compressed air system analysis for a food processing plant at Vero Beach, Florida. Results of compressor testing found the two main compressors were capable of producing rated flow but at significantly increased power consumption. Both compressor motors were operating well into their service factor providing only 3.1 – 3.8 cfm/hp instead of the expected 4 – 4.25 cfm/hp. Air leak quantity in the system was high at 45%, compared to 10% or less with other similar types of facilities. Recommendations for changes and improvements to the air system included Perform Maintenance on Compressors, Loop Piping in the Main Plant, Install a Small Dedicated Compressor, Leak Detection and Repair, Install Receiver Tanks at Critical Locations, Reduce Dryer Purge Volume on Desiccant Dryer, and Install Refrigerated Dryers on Main Plant Compressors. The energy savings potential is a 55% reduction in kWh and a 51% reduction in overall energy cost.

Airometrix – Project Summaries

Energy Efficiency Study Category	Client Name Name of Study Timeframe	Project Description
Compressed Air System Assessment	Stewart and Stevenson Compressed Air System Analysis & Compressor Performance Testing (2001-2002)	Stewart and Stevenson, an industrial supplier, contracted with Airometrix Mfg., Inc. to perform compressor performance tests and a compressed air system analysis for one of their medical equipment manufacturing customers, located in Boulder, Colorado. In-field compressor performance testing was performed, which revealed that four of the five compressors were not producing their rated airflow. Air leak quantity was measured at 103 cfm or 15% of compressor output; the targeted leak rate at this type of facility is 5%. Recommendations included installing a small receiver volume at specified machines to help smooth pressure fluctuations in the system, and a dedicated air system to carry the IBC load at 125 psig and the remainder of the plant at 100 psig or less. It was also recommended that compressor controls be installed to ensure the compressors are fully loaded before a new compressor is brought on line. A potential 44% reduction in electricity consumption was identified. Additionally, savings from reduced peak demand were also found.

C. Resumes or Description of Experience

Gary M. Hirsch

Vice President and Principal Associate at Global, Mr. Hirsch provides management consulting, program design and development, market assessment and strategic marketing consulting for industry, business and government. He has been Project Manager and advisor to the EPRI Retail Technology Application Centers managed by Global. Mr. Hirsch is a former Assistant Director of the Washington State Energy Office where he led initiatives in energy efficiency, market transformation, facility siting, energy policy development, energy efficiency for institutional buildings, co-generation development, and renewable resources and technology transfer. While there, he was recognized four times by Washington governors and Agency Directors for excellence in public service.

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Prior to joining Global, he was a Vice President and a Senior Manager at Macro International, a Washington, D.C., management consulting firm, where he helped start Macro's energy consulting division. He secured and managed a 5-year, \$12 million contract to develop and support the Department of Energy's Industrial Energy Efficiency Programs, including Motor, Steam and Compressed Air Challenges. He also was a leader in the national movement to apply consumer branding and advertising strategies to energy products and services. In addition, he set up Macro's Northwest regional office. Mr. Hirsch has advised governors and legislators on energy matters. He is currently President and a Director of the Northwest Energy Efficiency Council, an association of energy businesses. Mr. Hirsch has a B.A. in Energy Engineers from Evergreen State College.

Patricia Hurtado

Ms. Hurtado is Vice President at Global Energy Partners, where she manages the firm's technical staff. Ms. Hurtado provides overall direction to three of the EPRI Retail Technology Application Centers: The agriculture and Food technology Alliance (AFTA), The Succeeding in residential and Commercial Markets, and the Healthcare Program. She manages and conducts program design, implementation, and performance assessment; strategic planning; market evaluation; energy efficiency measure analysis; building analysis and engineering modeling; distribution and retail sector analysis; and privatization evaluation studies for the firm's utility clients.

Prior to joining Global and NEOS, Ms. Hurtado was an independent consultant in South America for three years where she was project manager for studies to restructure the energy distribution sectors of several public utilities, evaluate the technical and economic potential of privatization, and design privatization procedures for electric utilities. Ms. Hurtado was an associate with Barakat & Chamberlin for four years where she provided demand-side management analysis, utility resource and strategic planning, forecasting, and rate design and analysis for the firm's utility clients. Ms. Hurtado earned an M.S. in Mechanical Engineering from Stanford University and a B.S. in Mechanical Engineering from the University of Los Andes in Bogotá, Colombia. She is a registered Professional Engineer (P.E.) in California. Ms. Hurtado is fully bilingual in English and Spanish.

Charles D. Sopher

As Principal Associate with Global, Dr. Sopher manages EPRI's Agriculture and Food Technology Alliance (AFTA). He brings over thirty years of experience in agricultural production and food processing research, including management and operations of peanut, vegetable, spice and soybean seed facilities. He has a strong background in the management of research programs in variety development, variety screening, biotechnology, biological pest control, pest management, post-harvest physiology and environmental regulation.

Dr. Sopher has managed production facilities for vegetable, agronomic, essential oil and spice crops in Europe, Asia and South America, as well as in the United States, Mexico and Canada. Prior to working with major international corporations, he spent ten years engaged in university teaching, research and extension at North Carolina State University, Raleigh. In addition, he is the author of 30 research and extension publications as well as editor and/or author of approximately 350 proprietary research reports. He has led a research team in the development of 45 plant variety protection patents in vegetable and spice crops. Most recently he edited and published approximately 70 research reports

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for EPRI and continues to edit newsletters and popular research articles for the EPRI AFTA. Dr. Sopher has advanced degrees in Agronomy with emphasis on Biological Statistics, Economics and Management Systems, having graduated with a Ph.D. in Soil Science with minors in Statistics and Economics from North Carolina State University at Raleigh. He received his M.S. in Agronomy with a minor in Economics from the University of Illinois, Urbana.

Kelly Parmenter

Dr. Parmenter joined Global Energy Partners as a Senior Associate in November 2000. She has over 15 years of experience in energy efficiency, thermal sciences, and materials. She provides engineering support and project management in the areas of indoor air quality, industrial emission control, energy efficiency, and electrotechnology development and implementation.

In the food and agriculture field, Dr. Parmenter has directed investigations for two studies related to the food processing industry and animal manure management. The projects investigated promising technologies that can improve the efficiency of operations in the food processing and agriculture industries, and the market drivers and barriers to the technologies. The study also proposed strategies that utilities can use to assist their food processors and agriculture customers overcome the market barriers to the technologies.

Prior to joining Global, Dr. Parmenter served four years as a Research Associate for DMJMH+N. Her responsibilities included project management and engineering support for the Energy Services Division. Dr. Parmenter also worked as a Research Associate for the University of California, Santa Barbara. Dr. Parmenter received her Ph.D., M.S., and B.S. degrees, all in mechanical engineering, from The University of California, Santa Barbara.

Ingrid Bran

A Senior Associate with Global Energy Partners, Ms. Bran has over fourteen years of experience in the energy sector and manages analyses that focus on technical and economic aspects of the industry. She brings expertise in the areas of load research, end-use data analysis, sampling and surveys, economic analysis, and market research. She has recently been involved in the management of projects to implement load reduction programs in California, and to create a five-year R&D plan for the California electronics industry.

Prior to joining Global, Ms. Bran worked for over eight years at the Electric Power Research Institute (EPRI) in several management capacities. Her most recent responsibilities involved managing client relations, technology transfer and customer service in Spain, the Caribbean, and Latin America. At EPRI she also was Manager of R&D Planning and Analysis for the Customer Systems Group. Ingrid worked during four years at Southern California Edison (SCE) developing, analyzing, and reporting load research data in support of rate, regulatory, conservation/load management, system planning, and regulatory requirement activities. She created computer programs to access, validate, and statistically analyze electricity data and authored analytical reports on various electricity customer groups and programs including real-time pricing. Ms. Bran was also a Senior Analyst in economic consulting at Micronomics, Inc., and Market Planning and Research Analyst, and International Economist at Union Bank. Ms. Bran holds a Bachelor's degree in Economics from California State University, Fullerton,

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and a Master's degree in Economics from the University of California, Berkeley. Ms. Bran is fully bilingual in English and Spanish.

Chainuwat (Joe) Prijyanonda

Mr. Prijyanonda has seven years of experience in the field of energy efficiency. In his assignments for Global, he conducts energy efficiency and demand curtailment assessments, building analysis, and engineering modeling. He is Global's resident expert in using the DOE-2 model, and has been the principal developer of Global's own Building Energy Simulation Tool (BEST).

In the food and agriculture field, Mr. Prijyanonda has served as principal investigator on two studies related to the food processing industry and animal manure management. For each of these topics, he investigated promising technologies that can improve the efficiency of operations in the food processing and agriculture industry, and the market drivers and barriers to the technologies.

Mr. Prijyanonda has recently been involved in providing all technical analysis and building energy modeling and simulation expertise for creating a Database of Energy Efficiency Measures (DEEM). DEEM includes information on energy, peak demand, and life cycle cost impacts of a variety of measures for eight building types located in 15 regions of the U.S.

Prior to joining Global, Mr. Prijyanonda led several energy-efficiency initiatives in Asia while he was a Project Manager with the International Institute for Energy Conservation. Mr. Prijyanonda holds a Bachelor's degree in Mechanical Engineering from the University of California at Irvine, and a Master's degree in Energy Technology from the Asian Institute of Technology.

Jurgen Strasser

Dr. Strasser is President of Process & Equipment Technology and has over thirty years of experience in many food processes, such as drying, thermal processing (canning and aseptic), freezing, materials handling, packaging, process monitoring and control, solids recovery, ozonation, process water management, and water re-use. Examples of successful process developments achieved by Dr. Strasser include the evaluation of energy efficient processes for water purification, recycling, and the use of ozone as an antimicrobial agent. He has performed many comprehensive audits in food processing plants for which his primary focus has been to identify and recommend new energy efficient technologies.

Prior to establishing Process and Equipment Technology, Dr. Strasser was a process engineer consultant to U.S. food processors, electrical utilities, EPRI, and the University of California, Davis. During his career he has managed the Process Engineering Dept. of Del Monte Foods Research Center and managed prepared foods equipment projects for FMC Corp. He has made over eighty presentations on food processing and water treatment technologies, written eighteen publications for scientific journals, and holds nine U.S. patents on food processing equipment and processes. Dr. Strasser holds an M.S. degree in Chemical Process Engineering and a Ph.D. degree in Food Process Engineering from the University of Munich, Germany.

Scott Stroup

Mr. Stroup is President of Airometrix Manufacturing. Mr. Stroup is responsible for Airometrix's engineering and design functions as well as field testing, auditing, and training services. Mr. Stroup has over ten years of experience in industrial energy conservation, having worked as the Lead Industrial Engineer and Division Manager for BRACO Resource Services, a consulting firm in Seattle, WA. He was also project manager for EUA Cogenix, an energy services company in Boulder, CO. He has worked in many industries including food processing, pulp and paper, chemicals, wood products, plastics, fabricated metals, high technology, electronics, and water and wastewater facilities. Mr. Stroup has a B.S. degree in Mechanical Engineering from Colorado State University.

Section VIII. Budget

The following table summarizes the program budget in terms of the main budget categories from the workbook.

Proposed Program Budget

Budget Category	Total	Percentage of Total Budget
Administrative		
Managerial and Clerical Labor	\$375,737	19.84%
Human Resource Support and Development	\$0	0.00%
Travel and Conference Fees	\$73,022	3.86%
Overhead (General and Administrative) - Labor and Materials	\$49,175	2.60%
Total Administrative Costs	\$497,934	26.30%
Marketing/Advertising/Outreach	\$160,016	8.45%
Direct Implementation		
Financial Incentives to Customers	\$552,000	29.15%
Activity - Labor	\$381,024	20.12%
Installation and Service - Labor	\$0	0.00%
Hardware and Materials - Installation and Other DI Activity	\$19,200	1.01%
Rebate Processing and Inspection - Labor and Materials	\$91,220	4.82%
Total Direct Implementation Costs	\$1,043,444	55.11%
Evaluation, Measurement and Verification	\$117,404	6.20%
Financing Costs		
Profit (9% of Global Labor Cost)	\$65,533	3.46%
Financing Costs (1.26% of Global Labor Cost)	\$9,175	0.48%
Total Financing Costs	\$74,708	3.95%
Total Budget	\$1,893,506	