2009-2011 Energy Efficiency Programs
Residential HVAC Tune-up/Quality Installation of New Equipment
Program Implementation Plan

1) Program Name: Residential HVAC Tune-up/Quality Installation of New Equipment (also known as AC TIMe)
Program ID Number: TBD
Program type: Third-Party Program

2) Projected Program Budget Table

Table 1[1]

Program #	SDG&E 3rd Party - Califorinia Sustainability Alliance	Total Administrative Cost (Actual)	Total Marketing & Outreach (Actual)	TOTAL Direct Implementation	Integration Budget Allocated to Other Programs (if Applicable)	Total Budget By Program (Actual)
Market Sector Program - Residential						
	3P-Res01 - Res HVAC Tune-up/Quality Installation	2,326,847	2,055,506	7,533,781	0	11,916,134
	TOTAL:	**2,326,847**	**2,055,506**	**7,533,781**	**0**	**11,916,134**

Final third party program budgets are subject to change based on Commission approval and final negotiations.

These budget numbers are presented in Appendix C: Energy Division Tables, Graphs & Pie Charts: Table 7.1 - 2009 - 2011 IOU Strategic Planning Program Budget

3) Projected Program Gross Impacts Table

Table 2

Program #	SDG&E 3rd Party - Califorinia Sustainability Alliance	2009-2011 Three-Year EE Program Gross kWh Savings	2009-2011 Three-Year EE Program Gross kW Savings	2009-2011 Three-Year EE Program Gross Therm Savings
Market Sector Program - Residential				
	3P-Res01 - Res HVAC Tune-up/Quality Installation	395,023	629	-1,867
	TOTAL:	**395,023**	**629**	**-1,867**

Final third party program energy savings are subject to change based on Commission approval, DEER update and final negotiations.

[1] Definition of Table 1 Column Headings: Total Budget is the sum of all other columns presented here
Total Administrative Cost includes all Managerial and Clerical Labor, Human Resource Support and Development, Travel and Conference Fees, and General and Administrative Overhead (labor and materials).
Total Direct Implementation – includes all financial incentives used to promote participation in a program and the cost of all direct labor, installation and service labor, hardware and materials, and rebate processing and inspection used to promote participation in a program.
Total Marketing & Outreach includes all media buy costs and labor associated with marketing production.
Integrated Budget Allocated to Other Programs includes budget utilized to coordinate with other EE, DR, or DG programs.
Total Budget is the sum of all other columns presented here
Definition of Sub-Program: A "sub-program" of a program has a specific title; targets; budget; uses a unique delivery or marketing approach not used across the entire program; and for resource programs, has specific estimated savings and demand impacts.

These savings values are presented in Appendix C: Energy Division Tables, Graphs & Pie Charts: Table 7.2 - IOU 2009 - 2011 Program Savings Estimates

4) Program Description

a) Describe program

AC TIMe targets San Diego Gas & Electric (SDG&E) residential customers with air-cooled, refrigerant-based (known as "direct expansion or "DX") air conditioning improvements. The objective of the program is to improve the performance of existing Heating, Ventilating, and Air Conditioning (HVAC) systems for participating SDG&E customers through the use of advanced diagnostic techniques, the replacement of existing inefficient air conditioners with new high efficiency units, adherence to quality installation procedures, and quality of service training designed to provide HVAC contractors with skills that enable them to move energy efficient products and services through the market place.

The Program will be comprised of two main components: (1) air conditioner system tune-ups using advanced diagnostic methods, and (2) installation of high efficiency air conditioners with verification of a quality installation. The Program provides rebates and/or incentives for the implementation of the following measures in the residential HVAC market:

- Refrigerant charge and airflow (RCA) diagnostic tune-ups;
- Condenser coil cleaning;
- Duct test and sealing;
- High efficiency air conditioners, and
- Quality installation verification.

Contractor will bundle these individual measures to provide a more comprehensive level of service to the customer.

The Program will provide technical training and sales training to participating contractors, rebates for energy efficient air conditioning equipment, and incentives for quality installation of replacement equipment.

The advanced diagnostic methods employed are analogous to computerized diagnostics used in the automotive sector. Operating and environmental data are collected, entered into and analyzed by a computer. The resulting analysis provides the air conditioner technician with a diagnosis of the system and guidance on what corrective actions to take.

The principal means for conducting advanced diagnostics on HVAC incorporates systems, known as technical platforms, which have been developed by, and are maintained by, verification service providers (VSPs). In addition to providing the technical platforms, VSPs assist in recruiting and training contractors, perform quality assurance activities, database management of the operating data, and participate in the

payment of contractors. Contractors will perform diagnostic and tune-up tasks using the technical platforms. Operating data for each test will be transferred to the VSP's database where the data are subjected to quality assurance (QA) procedures. The VSP will then transfer the data to Contractor where additional QA and processing will be performed prior to uploading to SDG&E's Subcontractor Management and Reporting Tool (SMART) system for final processing and payment. Alternatives to the VSP model would be considered on a case-by-case basis.

Rebates/incentives will be offered for the installation of high efficiency air conditioning units and for quality installation verification of new air conditioning units. These two elements go hand-in-hand with ensuring the air conditioner is properly sized and properly installed so that it may deliver the energy savings that it is capable of delivering.

The Program will achieve energy efficiency savings through a variety of interdependent measures targeting both HVAC contractors and residential customers. Key program elements and the rationale associated with each are highlighted below:

- **Incentives.** The program will administer rebate/incentives to customers and contractors for the implementation of qualifying HVAC energy efficiency measures (e.g., diagnostic tune-ups, duct sealing, new high efficiency Air Conditioner (A/C) and quality installation). Qualifying program measures have been selected for their ability to provide cost-effective energy and peak demand savings. Rebates and incentives are provided to improve the real and perceived economics of measure implementation from the perspective of customers and HVAC service providers.
- **Advanced diagnostic tune-up of air conditioning systems.** Contractors performing advanced diagnostic tune-ups will use one of the accepted technical platforms or a suitable substitute. VSPs that participate in the program have developed technical platforms that generate a systems analysis based on diagnostic readings for the HVAC unit. The system uploads data collected by a technician, processes and analyzes the data and guides the technician towards remedial steps that should be taken if indicated by the data. After taking these remedial steps, if necessary, operating data is measured and recorded in the technical platform so that data on system operation after remediation is retained.
- **Program workshops and contractor outreach.** Program workshops will be a key outreach strategy in recruiting HVAC contractors for the program, and educating them on quality installation issues. This approach has proven to be a key element in reaching contractors and obtaining their participation.
- **Comprehensive contractor training on technical aspects of the program.** Contractor will provide classroom and individualized field training for program contractors on program measures and the use of program tools. As a requirement for program participation, training sessions will be attended by HVAC contractors who will be performing the prescribed measures in the field. The intent of training is to persuade actors across all levels of an organization, from decision-makers to field implementation staff, of the efficacy of energy efficiency measures from both an operations and revenue generating perspective.

Contractor will investigate instituting a contractor certification program for program participants, ideally in conjunction with industry certification organizations such as North American Technical Excellence (NATE). If adopted, a logical implementation approach will be utilized to maintain market momentum while helping improve the technical competency in the HVAC community.

- **Sales training and the sales organization.** In addition to technical training, Contractor will work with contractors to focus on their individual needs throughout the sales cycle. Many HVAC contractors do what they do well, i.e., maintain and install air conditioners. There is often a gap in their skill set for selling energy efficiency services to customers. This is particularly important to residential customers where the point of sale is often while the technician is on-site with the customer. Experience shows disconnects at the organizational level between the technicians who collect field data on HVAC efficiency opportunities and the sales staff who transform these opportunities into energy efficiency sales. Contractor will therefore provide sales training for contractors, and will be available to assist contractors on an individual basis, for instance by fine-tuning their customer proposals or accompanying them on customer sales calls focused on delivery of energy efficiency measures. AC TIMe will also continue working with HVAC contractors to help develop their organizations around energy efficiency as a key attribute in this market.
- **Lead generation.** Even mid-sized mechanical contractors seldom have the marketing and sales resources required to develop leads for new kinds of services. In the residential sector, Contractor will use billing data to identify customers who use abnormally high levels of energy for cooling. As part of its existing audit program, Contractor is expected to have experience and systems in place for handling and analyzing billing data. This analysis will yield a targeted customer list for direct mail and follow-up telemarketing. Customers who are interested in receiving services will be connected with a participating contractor.

AC TIMe will employ multiple marketing strategies in reaching its target markets.

- **Contractors.** Contractor will leverage the work performed for the 2006-08 AC TIMe where over 70 contractors have been recruited. As was previously used, a combination of direct mail, recruitment workshops and direct communication has proven to be effective in recruiting contractors into the program. With the addition of new equipment incentives AC TIMe will work with the manufacturers and distributors of air conditioning equipment to ensure their pools of contractors are trained and participating AC TIMe. Contractors will be contacted regularly to ensure they continue to be engaged in the program.
- **Customers.** Targeted direct marketing will be conducted. Primary targets will be geographically based, however, AC TIMe would benefit from targeted marketing efforts based on energy usage patterns of customers. This type of marketing can be very targeted and yield positive savings results, even in areas of diminished savings such as climate zone 7, by enabling participation

of high air conditioning users.

With geographic targeting, areas are identified as targets and a campaign is launched. As in the past, a multi-pronged approach will be used: (1) community groups such as homeowners associations (HOAs) will continue to be a valued resource in this area; (2) targeted direct mail will be used to promote advanced diagnostics; and (3) door-to-door canvassing will be performed. Major media may be used on a selective basis.

Contractors will be a primary marketing vehicle for new equipment installation. Contractors will receive sales training, as well as technical training on quality installation procedures.

The implementation activities are comprised of training, technical assistance, testing and diagnostics, VSP coordination and invoice processing, quality assurance, customer service and relations, and rebate processing.

- **Training and certification**. AC TIMe provides training to participating contractors. The training component includes technical and sales training. Training will be conducted by AC TIMe staff as well as selected training contractors.
- **Technical assistance**. AC TIMe provides technical assistance to contractors. While closely related to training, we will address technical problem on a case by case basis. Some issues will be resolved via telephone while others may require on-site assistance.
- **VSP coordination**. Verification service providers (VSP) play a key role in AC TIMe. Their technical platforms provide the basis for performing advanced diagnostic tune-ups with the data integrity and quality assurance the program requires.
- **Quality assurance**. Quality assurance includes a review of diagnostic test data received from VSPs, on-site inspections, detailed account matching protocols.
- **Rebate processing and invoicing**. Rebate/incentive processing for diagnostic tune-ups will be based on diagnostic test data received from VSPs. If an alternate, non-VSP, approach is used for diagnostics; an appropriate processing method would be implemented.

The flow charts below show the flow of a project through AC TIMe:

Figure 1

2009-2011 Energy Efficiency Programs
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HVAC RCA Process Flow Chart

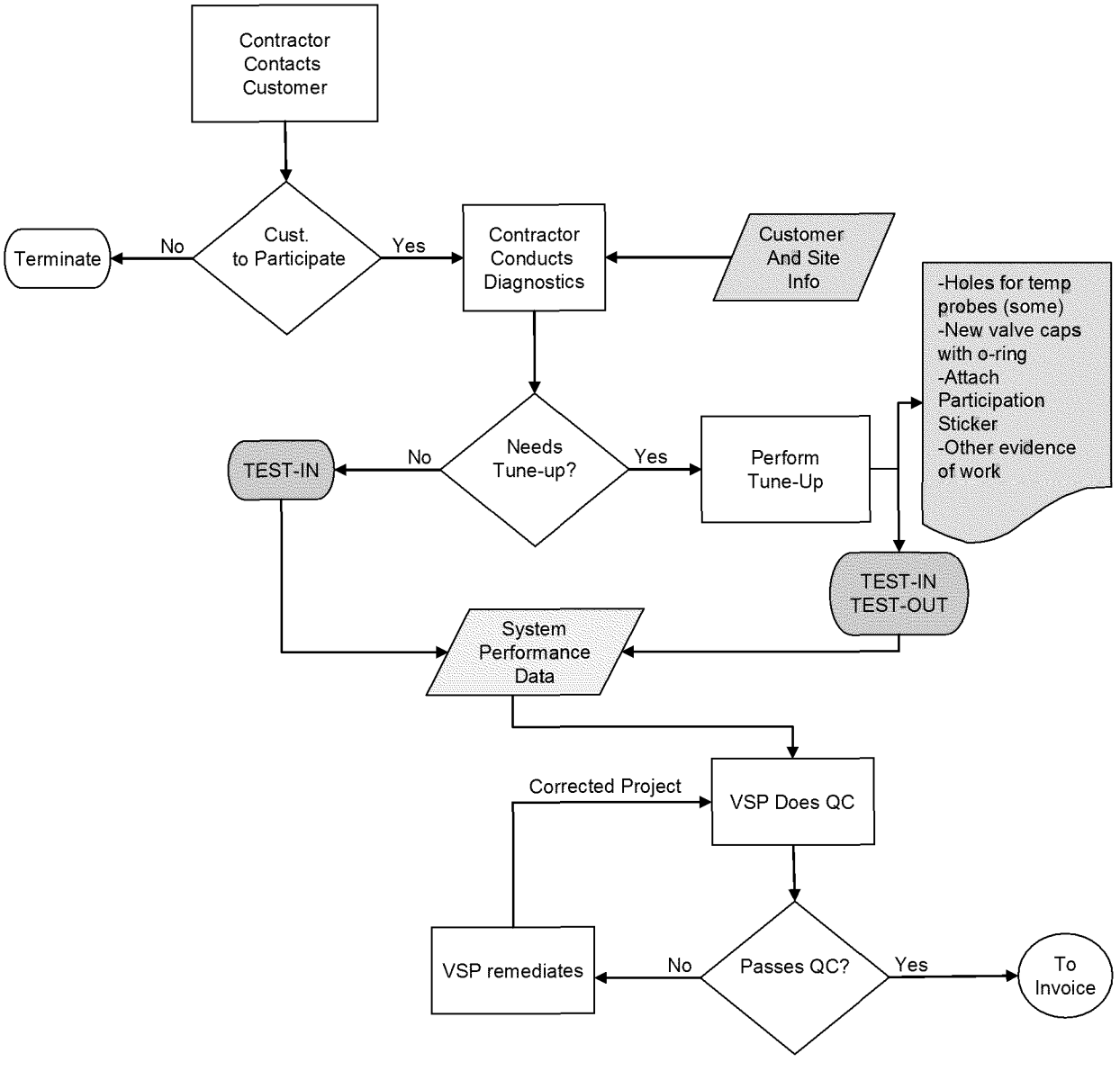


Figure 2

Residential HVAC High Efficiency Retrofit Rebate Process Flow Chart

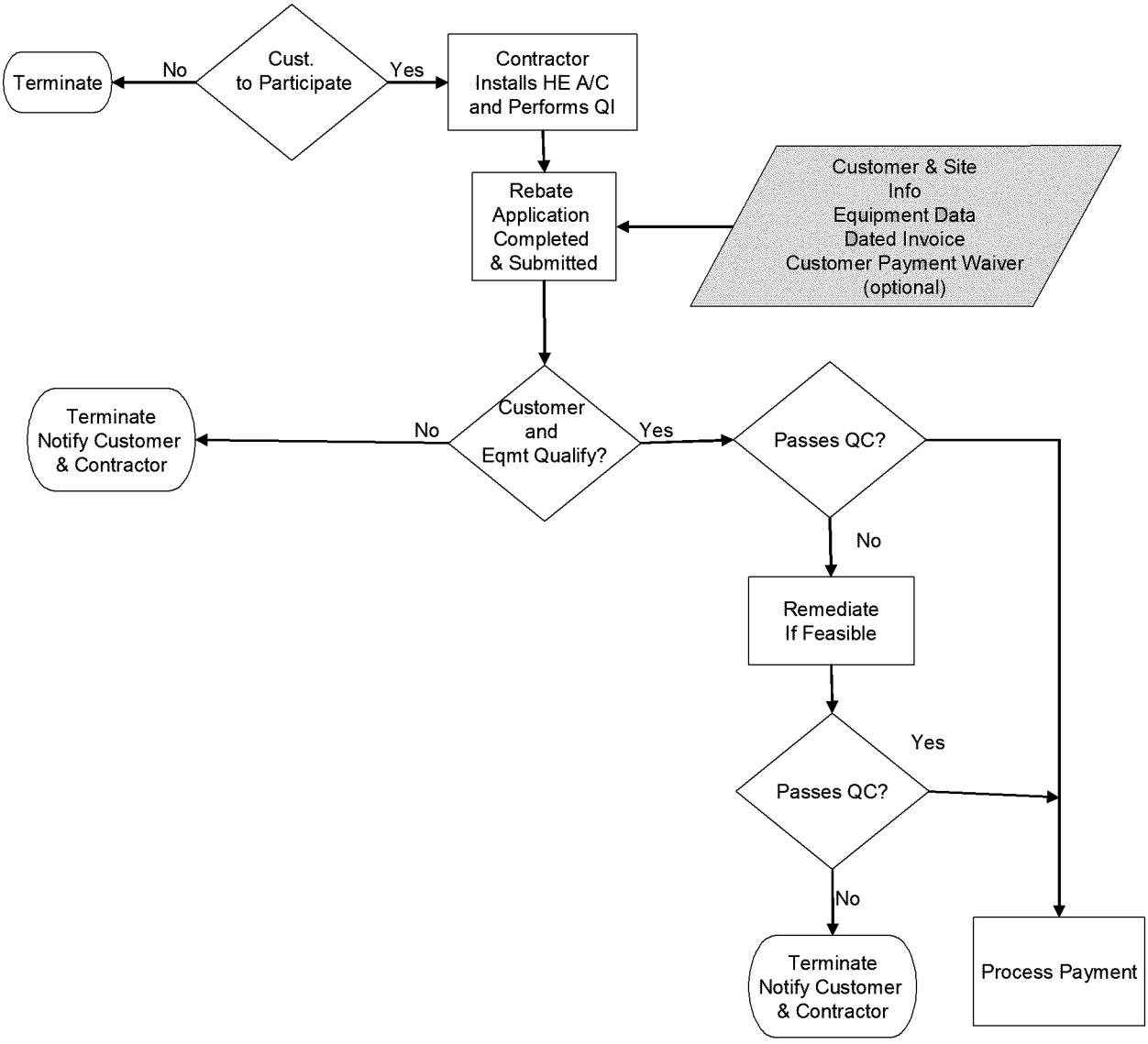
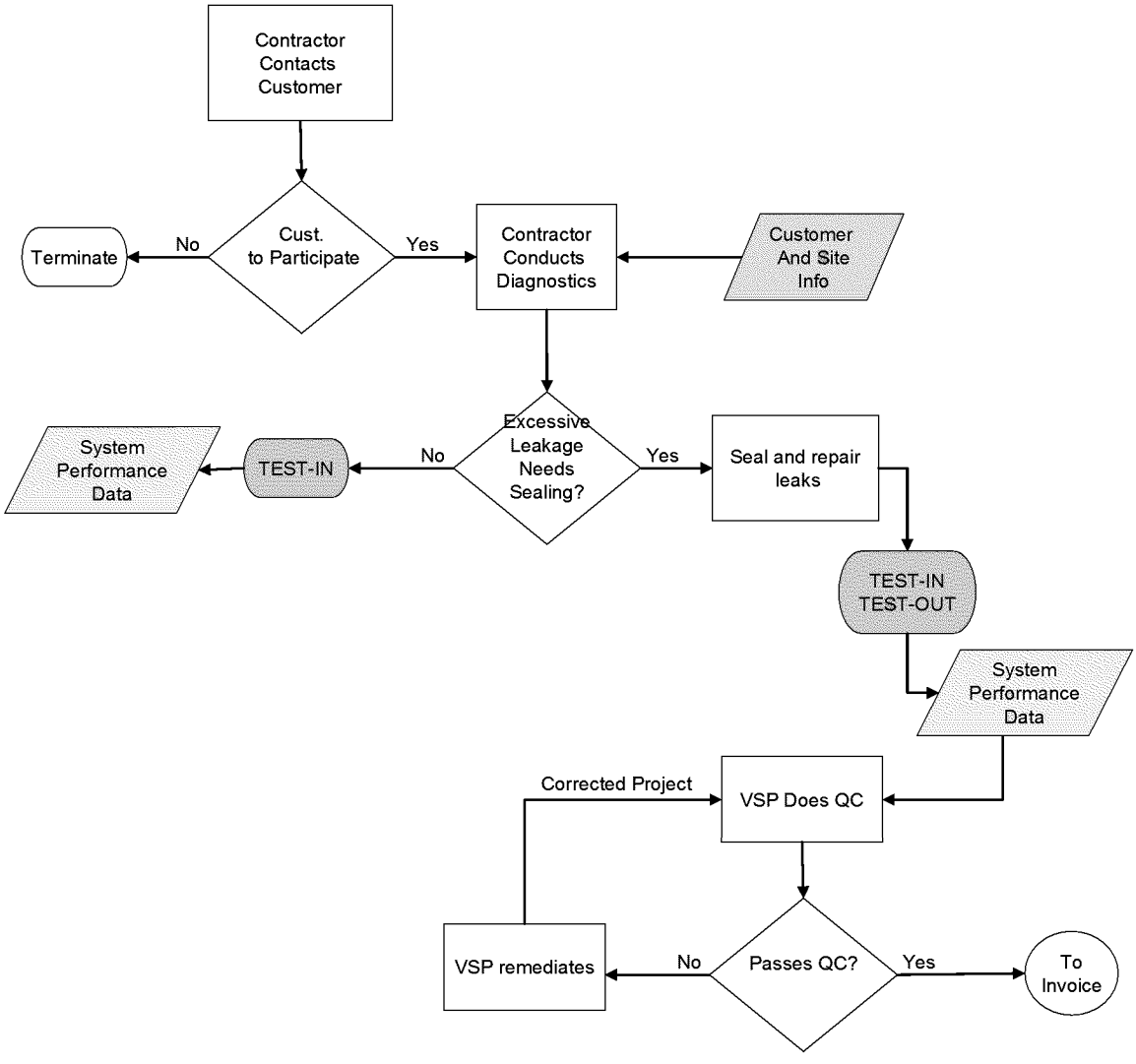


Figure 3
Residential HVAC DTS Process Flow Chart



b) List measures

Measure	Incentives (per unit)
Refrigerant Charge and Airflow	$25/ton (End Use Customer) $45/ton (Other Entities)
Condenser coil cleaning	$10/Large or Small A/C Unit (End Use Customer) $45/Large or Small A/C Unit (Other Entities)
Duct Test and Seal	$25/1000 SF Floor space (End Use Customer) $100/1000 SF Floor space (Other Entities)

HE Air Conditioners	SEER 14 SEER 15 MoH $50 /$225 MF $50/$175 SF $50/$225 SEER 18 MoH $75/$280 MF $75/$220 SF $75/$280
Quality Installation Verification	$25/Home (End Use Customer) $280/Home (Other Entities)

c) List non-incentive customer services

- Contractor and technician training
- Customer service (call service center, troubleshooting, QA)

5) Program Rationale and Expected Outcome

a) Quantitative Baseline and Market Transformation Information

Table 3

	Baseline Metric		
	Metric A	Metric B	Metric C
Overall Program			
Sub Program #1			
Sub Program #2			
Sub Program #3			

Market Transformation has not been a major focus of the California energy efficiency programs since the energy crisis. Consequently, relatively little attention has been given in recent years to identifying and gathering data on indicators of change towards market transformation. For some programs or sub-programs that promote a single end use or measure, there may be some data available for this purpose, probably from industry sources, that we have not yet identified. For many of the programs, however, this kind of long-term, consistent, and expensive data collection has not been done in California.

The utility program planners have worked closely with their respective EM&V staffs and with each other to identify available information and propose potential metrics. Each utility and each program has some data available, but attempts to distill the limited available information into a common set of agreed-upon metrics have proved far more difficult to accomplish. Offering metrics in which there is not strong confidence would not be productive. Therefore, the utilities respectfully exclude "draft" metrics at this time and instead suggest a means of developing meaningful indicators.

The utilities will develop meaningful baseline and market transformation concepts and metrics for programs that do not currently have them, and then propose to design and administer studies to gather and track consistent, reliable and valid baseline and market effects data. We would propose to use the program logic models and The California Evaluation Framework (2004) as guides, and to begin this work after approval of the Application using funding provided for Evaluation, Measurement & Verification.

We expect that the baseline studies (1) adequately describe the operation of markets that are targeted by a program, (2) confirm our tentative identification of measurable parameters that would indicate changes towards greater efficiency in the market(s) and that are likely to be affected by the program, and (3) gather the current values of those parameters, to serve as baselines against which future market movement can be tracked.

b) Market Transformation Information

Table 4

	Internal Market Transformation Planning Estimates		
Market Sector and Segment	2009	2010	2011
Metric A			
Metric B			
Metric C			
Metric D			

As explained immediately above, the utilities propose to provide these draft metrics when available.

c) Program Design to Overcome Barriers:

Previous experience in conducting similar programs by other organizations suggests that the followings are the major market issues and barriers to more widespread customer acceptance and contractor promotion of HVAC efficiency services. We have designed the program to address these issues in the following manner:

Barrier	Solution
Pricing and competitive pressures. In surveys of HVAC contractors about what their customers value most highly, contractors report that quality/reliability issues (58%) and price (54%) are the most important factors. In contrast, energy efficiency is mentioned by customers as important only 25% of the time. While most contractors report that promoting high-efficiency equipment is important to their competitive position, most also say that it is "somewhat" or "very" difficult to sell high-efficiency units (XENERGY, 1999a). Other studies have found that many contractors seldom bid or even	AC TIMe provides financial incentives that allow the contractor to offer diagnostic services at reduced or no cost to the customer. This incentive will enable contractors to recover at least part of their investment in equipment and training and reducing the price competition, or profitability, of performing advanced diagnostics. AC TIMe will stimulate a pull effect by increasing customer awareness of the advantages of advanced diagnostic tune-ups of

mention high efficiency equipment in sales situations (XENERGY, 1999; Robertson et al. 1996). Such practices are indicative of a number of barriers in the HVAC contracting market, principally stiff price competition in the construction industry and limited facility owner understanding of or interest in HVAC energy efficiency. Those contractors who have been successful in selling high efficiency equipment have generally taken a design-build approach. However, even many design-build contractors are uninterested in specifying high efficiency equipment	A/C units. Contractors may be good at plying their trade, but may not be adept at marketing value-added features of AC TIMe such as tune-ups and QIV. AC TIMe provides sales and marketing training in a classroom setting as well as on a consultation basis with individual contractors. In the past this has served to assist contractors in setting up their organization to more effectively reach their customers with the program.
Lack of focus on using and incorporating advanced diagnostic techniques into contractors operation. Contractors have traditionally stayed with their existing business model because they are comfortable with it. They need to see justification for changing their business practices.	AC TIMe gives contractors two reasons to change their business model. First, provide state-of–the art services to their customers in diagnostic-driven tune-ups. Second, costs to adopt by the contractor are offset by the incentives offered by the program. In addition, the incentives offer the customer a reason to participate at a lower cost , thus stimulating the pull-effect through the contractor.
Sales challenges, end-user apathy and high cost of sales. From the perspective of the end-user, air conditioner units are often "out-of-sight, out-of-mind", and therefore completely ignored until performance has degraded to a point where the unit no longer performs adequately. This approach results in unnecessarily high operating costs and early equipment failure. Most contractors do not know how to effectively make a sales pitch to the end-user to perform diagnostic tune-ups or replace inefficient air conditioners with high efficiency units. Nor do they perceive the benefits of using energy efficiency as a means to differentiate themselves from their competition.	The sales challenge occurs on two fronts: lack of acknowledgement by customers of problems and lack of expertise on the part of contractors to effectively market diagnostic-based services. AC TIMe will stimulate a pull effect by increasing customer awareness of the advantages of advanced diagnostic tune-ups of A/C units. Raising awareness and demand for services by customers will drive some contractors to either begin to offer diagnostics or to take advantage of the market and focus their efforts on their own promotion of diagnostics. AC TIMe provides sales/marketing training to contractors to help them develop a marketing approach that fits their business. Training is offered in both classroom and onsite through consultation. Issues such as enhanced equipment life and energy savings, as well as the comfort-related benefits of properly tuned A/C units are emphasized.

Barrier	Solution
Technician turnover. Turnover among HVAC technicians is very high. A typical contractor may lose as much as one quarter to one third of his technician staff in the course of a year When business is related to certain cycles, such as periods of high construction rates, contractors expand and contract their staff to match their business. .	Technician turnover is problematic in the trades. It is no different when it comes to A/C contractors. A program such as AC TIMe enables contractors to smooth out their work flow to manage the business cycles better. When installation activity is strong they can move technicians to installation, and when installation is not as strong technicians can be moved to diagnostics.

The AC TIMe Program strategy is designed to overcome these barriers and is founded upon the following market dynamics, described from the perspective of the end-user and HVAC service provider:

- **Customers:** (1) Need to perceive and give credence to the value provided by the product/service, including energy and non-energy benefits; (2) Must believe that the benefits of the measure outweigh the costs of adoption. These include not only the cost of the product or service itself, but the search, staff training, information system, risks, and other management costs involved in purchasing and using the measures effectively as well; and (3) Must be willing to purchase the new product/service in sufficient numbers in order for contractors to invest in the skills, tools, and systems required to deliver those services profitably.
- **HVAC Contractors:** (1) May be motivated to invest in delivering new energy efficiency services as a means to defend or gain market share in the short term; (2) Need to determine that they can deliver the energy efficiency services profitably in the long term and successfully in light of constraints posed by a very tight labor market; (3) Must be convinced that a sufficient number of customers are willing to buy the service to amortize investment in increased sales and delivery capacity; (4) Contractors will understand the concept of value-added service with their current maintenance program, and how this can increase their business opportunities; and (5) Must be trained to improve their technical capabilities in performing advanced diagnostic tune-ups and quality installation.

d) Quantitative Program Targets

The program has established the following cumulative targets.

Table 3

Program Name	Program Target by 2009	Program Target by 2010	Program Target by 2011
Tune-up Services	10,968	11,064	11,104
Quality Installs	170	180	180
Contractor Training Sessions	10	10	10

e) Advancing Strategic Plan Goals and Objectives

The Energy Efficiency Strategic Plan has articulated four energy strategies known as the "Big, Bold Energy Efficiency Strategies." Big, Bold strategy #3 is: "The Heating Ventilation and Air Conditioning (HVAC) industry and market will be transformed to ensure that its energy performance is optimal for California's climate."

This program supports the Strategic Plan by addressing the following items:

- **Goal 2: Quality HVAC installation and maintenance becomes the norm. The marketplace understands and values the performance benefits of quality installation and maintenance.**

The quality installation of new air conditioners, while may be practiced by some contractors, is not currently be systematically documented. Proper sizing and installation are critical to the long-term efficient operation of the air conditioner. AC TIMe will provide guidelines and incentives to customers and contractors for the quality installation of new air conditioners. In addition, contractors will be provided training to perform quality installations properly and to provide documentation to the customer for their records.

For the 2006-2008 program cycle, AC TIMe had initiated a contractor training program to help contractors perform advanced diagnostics on air conditioners and on how to sell advanced diagnostic air conditioning maintenance practices to customers. This training would be continued and expanded for 2009-2011. AC TIMe is investigating coordinating with organizations that focus on quality and will establish a certification program for HVAC contractors to participate in the program. In the spirit of market transformation the certification program will be phased in during the course of the program cycle to ensure the contractor community has the opportunity to fully participate in the Program.

- **Strategy 2-2: Launch a consumer marketing and education campaign to support the brand and stimulate market demand**

AC TIMe has a marketing program directed towards consumers to help them understand the value of quality installation and diagnostic-driven maintenance. Contractor will coordinate with any approved statewide effort as such becomes available.

In particular, the Program addresses the following Strategies identified in the Energy Efficiency Strategic Plan:

- By improving the performance of the existing air conditioning and installing more efficient new air conditioning, this program enhances the objective of reaching the Zero Net Energy homes. (2. Residential Sector Strategies 1.1, 3.1, 3.3, and Low Income Strategy 1.1)

- Promotes quality HVAC installation/maintenance and improves code compliance for peak load efficiency and performance (6. Heating, Ventilation and Air Conditioning, Strategies 2.3, 2.4, 3.1, and 4.3)
- Program aims to facilitate adoption of cost-effective sustainability design, development and operations. (7. Codes and Standards, Strategy 2.1)
- Program will train contractors on program measures and tools and will investigate instituting a certification program. (9. Workforce Education and Training, Strategy 1.2, 1.3, and 2.1)
- Relies on workshops in recruiting HVAC contractors for the program and educating them on quality installation issues. (10. Marketing, Education, and Outreach, Strategy 1.3)
- Creates demand for new air conditioning technologies. (11. Research and Technology, Strategies 1.4, 2.1, 2.2, 2.3, and 2.4)

AC TIMe will explore other initiatives and participate where such opportunities arise. The air conditioning industry has been called on by the Energy Efficiency Strategic Plan to create industry task forces to ensure the development of diagnostic protocols and to develop new and emerging HVAC technologies.

6) Program Implementation

a) Statewide IOU Coordination

i. Program name
ii. Program delivery mechanisms
iii. Incentive levels
iv. Marketing materials
v. IOU program interactions with CEC, ARB, Air Quality Management Districts, local government programs, other government programs as applicable
vi. Similar IOU and POU programs

This third party program only operates within SDG&E's service area. The Program is designed to support and complement SDG&E's core program activities. To the extent that this program may share common elements with the IOU's other third party programs or core or third party programs in other IOU service areas, the Program will strive to coordinate similar activities.

There is a current effort between the Investor-Owned Utilities (IOUs) to develop a statewide Program Implementation Plan (PIP) for HVAC services. This program will endeavor to become an active participant in the proceeding and to contribute to the industry throughout California and the western region of the United States.

New codes and standards have a direct impact on the program as the implementation of the 2008 codes will begin as the Program starts up. Code-based efficiency requirements will increase during the course of the Program. In addition, implementation issues are

being worked between the California Energy Commission (CEC), local jurisdictions, and third party contractors that should result in an increase in enforcement of the state energy efficiency codes (relative to past iterations).

As new air conditioner technologies diffuse into the market, AC TIMe will take advantage where feasible. For example, air conditioners with embedded diagnostic chips are moving into the marketplace. While there have not been enough units in the field at this point to make reliance on them feasible, Contractor will work closely with air conditioner manufacturers to adopt protocols for effective capture of information from these machines. With regards to diagnostic tools, an increasing number of tools capable of doing advanced diagnostics are coming on the market. Contractor will consider how these tools might be incorporated into AC TIMe without sacrificing the integrity of the program.

The Energy Efficiency Strategic Plan calls for a number of initiatives to be conducted by a number of parties during 2009-2011. These initiatives include aspects of AC TIMe such as standards, branding, marketing, and certification. Program staff endeavors to support and actively participate in these initiatives. At this point there is no statewide program for HVAC tune-up and maintenance; however, as the statewide initiatives unfold Contractor will participate fully. Contractor maintains regular contact with many parties in the industry, including contractors, distributors, IOUs, and other relevant market players interested in energy efficiency issues.

b) Program Delivery Mechanisms

i. Emerging Technologies program

Not applicable to this third-party program.

ii. Codes and Standards program

Codes and standards have a profound impact on programs such as AC TIMe. Minimum efficiency levels of new A/C equipment, in part, are specified by the State's Title 24 code. Through statewide HVAC PIP program development we expect the IOUs and associated parties to effect influence on the development of prevailing codes and standards pertaining to new HVAC equipment, as well as, emerging developments in equipment operations and maintenance.

iii. WE&T efforts

Not applicable to this third-party program.

iv. Program-specific marketing and outreach efforts (provide budget)

Not applicable to this third-party program.

v. Non-energy activities of program

Not applicable to this third-party program.

vi. Non-IOU programs

The Energy Efficiency Strategic Plan calls for a number of near-term tasks and initiatives for the HVAC Market Sector. These tasks and initiatives are directly related to the activities of AC TIMe, both near-term and long-term. The adoption of advanced diagnostic methods and quality installation are key aspects of AC TIMe and are a central part of the Strategic Plan. Program staff maintain contact with the working groups (or participate in these groups) that are preparing deliverables, such as, a statewide Program Implementation Plan (PIP) for HVAC programs to ensure the program has a continuous line of communication with those performing this and other critical tasks.

Public Interest Energy Research (PIER) has actively pursued projects exploring the energy efficiency of HVAC systems. The Program will work with PIER related activities, where feasible, to advance the energy efficiency of HVAC Operating & Maintenance (O&M) practices and HVAC selection and installation practices.

It is expected to see the effects of training and certification of technicians by year three (3) of this Program. This should continue through the following three years when the market will be well on its way to being transformed.

vii. CEC work on PIER
Not applicable to this third-party program.

viii.CEC work on codes and standards
Not applicable to this third-party program.

ix. Non-utility market initiatives
Not applicable to this third-party program.

c) Best Practices

Contractor leverages lessons learned by employing an adaptive program design approach, where adjustments to the program design are made continuously. Contractor will review participation and maintain continuous communications with contractors, customers and distribution channels to ensure the program is working. The adjustments are intended to improve the performance of the program.

d) Innovation

A key innovative feature of AC TIMe is its focus on contractor training to improve the technical capabilities of the contractor market, thereby ensuring maximized load impacts from the program. This is crucial, as the Program relies on the execution of new methods that have been available to the market in various forms for a number of years, but not consistently practiced by contractors. Contractor will extend the training program established during the 2006-2008 AC TIMe Program. Such training will focus on

advancing the knowledge and skill of the technician to understand how advanced diagnostics work and how to effectively apply that knowledge in the marketplace.

e) Integrated/Coordinated Demand Side Management

The program design will achieve integrated delivery of all DSM options through the use of bundling and pricing to affect the decision to implement more comprehensive Energy Efficiency options.

The area with the greatest potential of capturing lost opportunities occurs with the Quality Installation measure for newly installed high efficiency air conditioners. The mechanics of HVAC system installation are such that problems leading to inefficient operation are likely to go undetected for several years, when they may (or may not) lead to comfort problems. It is relatively easy and inexpensive to prevent these problems during installation.

Similarly, the entire HVAC maintenance business can be viewed as one very large lost opportunity. Each year, purportedly qualified technicians service thousands of residential and packaged commercial air conditioners in the Company's service territory using traditional methods, at a societal cost of millions of dollars. This enterprise could yield enormous energy savings, but it yields less savings than expected due to lack of technical and sales training, and appropriate tools. This Program has the clear potential to change that situation. AC TIMe will phase-in an intensive training program that culminates in the certification of technicians to participate in AC TIMe. The certification process will be fully implemented towards the end of the Program to ensure each sufficient training opportunity for the technicians in the service area.

f) Integration Across Resource Types (energy, water, air quality, etc)

N/A.

g) Pilots

AC TIMe is exploring the use of pilot projects to expand the understanding of how certain very highly efficient A/C units are installed and operate in the field. Contractor envisions monitoring the pilots for energy use and other operating parameters to better understand how these very highly efficient A/C units work.

h) EM&V

The utilities are proposing to work with the Energy Division to develop and submit a comprehensive EM&V Plan for 2009-2011 after the program implementation plans are filed. This will include process evaluations and other program-specific studies within the context of broader utility and Energy Division studies. More detailed plans for process evaluation and other program-specific evaluation efforts cannot be developed until after

the final program design is approved by the CPUC and in many cases after program implementation has begun, since plans need to be based on identified program design and implementation issues.

7) Diagram of Program

No specific program diagram for this third party program has been developed. Any program linkages are discussed in Section 6.

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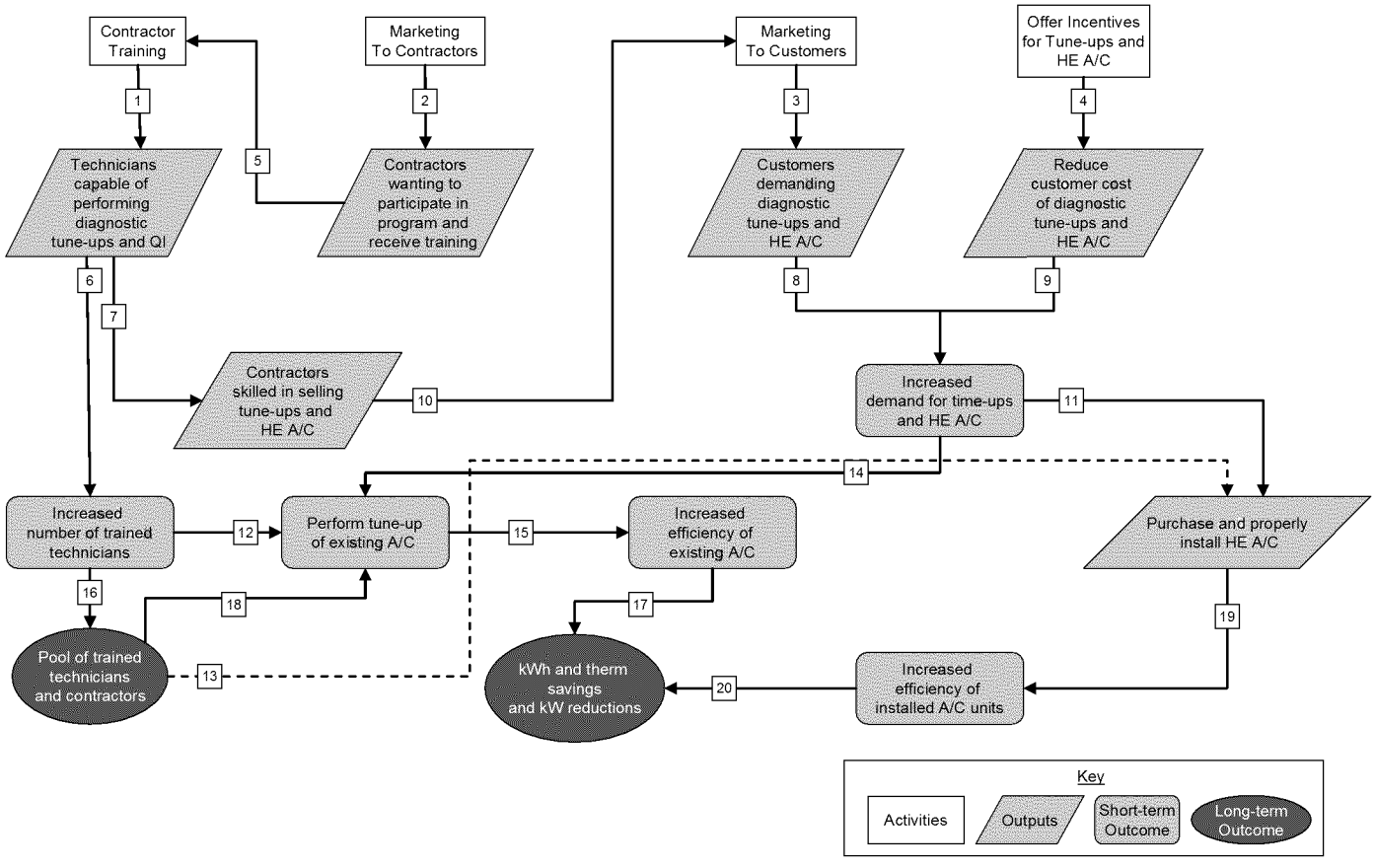
8) Program Logic Model:

Figure 4
AC TIMe Program (KEMA Res HVAC) Diagram

External Factors: Low consumer awareness, low contractor awareness, cost, lack of trained technicians, lack of contractor sales skills, changing codes and standards increasing the level of efficiency of new A/C equipment, as well as the cost needed to attain these efficiency levels.



2009-2011 Energy Efficiency Programs
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Table 4
AC TIMe Program (KEMA Res HVAC) Program Logic Model

Link Number	Program Theory Description
1	HVAC technicians are not sufficiently trained to perform A/C tune-ups using neither advanced diagnostic techniques nor quality install methods for specifying and installing new air conditioners. Technical and sales training will increase contractor knowledge in performing and selling program offerings.
2	Increase in contractor awareness, or attitude towards advanced diagnostics, HE A/C and quality installation. Information provided will be useful to the contractor in making their decision to participate in the program.
3	Customers are unaware of the benefits of specific HVAC services and equipment. The marketing component is focused on getting the word out that there are various services that can help increase the efficiency and comfort of their homes. Also, the marketing of the fact that there are trained contractors available to perform these services.
4	Incentives reduce cost of tune-ups and quality installations, and the first cost of HE A/C, increasing likelihood of the customer participating in the program.
5	Contractors decide to attend program training opportunities.
6	Technical diagnostic training for contractors and technicians improves the ability of contractors to provide program offerings to customers. Diagnostic training supplements the contractors existing knowledge of HVAC systems and helps ensure the A/C units are properly tuned per program guidelines that are more rigorous than current standard practice.
7	Sales training for contractors enhances the contractors' abilities to effectively sell energy efficient products, specifically, A/C tune-ups using advanced diagnostics, quality installation, and HE A/C units.
8	Program marketing to customers increases awareness of the program opportunities and benefits.
9	Incentives reduce cost of tune-ups and quality installations, and the first cost of HE A/C.
10	Contractor-driven marketing to customers increases awareness of the program opportunities and benefits.
11	Customers purchase and have installed properly sized, HE A/C.
12	Increased numbers of trained technicians, capable of properly performing tune-ups using advanced diagnostic techniques, increases the capacity of the number of tune-ups that can be performed.
13	Pool of trained technicians will provide new technicians an opportunity to perform quality installation of highly efficient A/C units.
14	Increased demand for tune-up of existing
15	Tune-up is performed by trained technician, ensuring A/C unit is operating at optimal efficiency.
16	Trained technicians increase the pool of available technicians to perform A/C tune-ups based on advanced diagnostic techniques.
17	When existing A/C systems are tuned to optimal efficiency energy savings and demand reductions are a result.
18	Technicians from the pool of trained technicians and contractors perform advanced diagnostic tune-ups on existing A/C units.
19	New A/C units that are installed using quality installation guidelines increase the overall energy efficiency of A/C units installed in the market.
20	Increasing the efficiency of installed A/C units results in energy savings and demand reduction.

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