

2006-08 ABAG ENERGY WATCH FINAL PARTNERSHIP REPORT



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EXECUTIVE SUMMARY

The 2006-08 Association of Bay Area Governments (ABAG) Energy Watch Partnership (Program) provided energy efficiency technical and policy services to cities, counties and special districts (agencies) in seven of the nine San Francisco Bay Area counties¹. This joint partnership of ABAG and PG&E produced energy efficiency savings in public facilities and promoted energy efficiency community-wide.

Program accomplishments from the contract start (August 18th, 2006) through April 2009 in each of the Program goals and targets is provided below. The Program exceeded each of its stated resource goals and non-resource targets with the exception of the peak demand reduction goal. The Program's energy savings achievements represent an annual reduction in greenhouse gas emissions of approximately 8,830 metric tons of CO₂e², and over the lifetime of the implemented measures the greenhouse gas reduction totals approximately 79,100 metric tons of CO₂e.

Table ES-1. ABAG Energy Watch Partnership Achievements

Description	Goal / Target	Achieved*	% of Goal Achieved
Gross kWh Savings**	25,028,321	25,442,684	102%
Gross kW Savings**	5,779	4,122	71%
Gross Therm Savings**	343,610	582,739	170%
Enrollees	50	70	140%
EARs	15	22	147%
Technical Assistance	30	61	203%
Policy Packages	6	7	117%
Greenhouse Gas Reduction (CO ₂ e, annual)	N/A	8,830 metric tons	N/A
Greenhouse Gas Reduction (CO ₂ e, lifetime)	N/A	79,100 metric tons	N/A

*ABAG Energy Watch also conducted two local government workshops on energy efficiency and climate action plans.

**As of 5/1/09, final approval of approximately 14% of the Program's reported gross kWh and kW savings and approximately 8% of the Program's reported gross therm reductions are pending the completion of PG&E's post-installation technical reviews.

The Program enrolled 70 agencies, provided technical assistance to 61 agencies, and completed projects at 48 agencies. In addition to energy policy and planning assistance, the Program provided a range of facility project services to participating local governments. The primary program services were preliminary and investment-grade lighting and HVAC audits, computer power management services, direct installation of lighting projects, and retrocommissioning audits. Additional services included assistance with bid processes, review of and development of retrofit project designs, incentive application assistance, third party review of audit reports, and

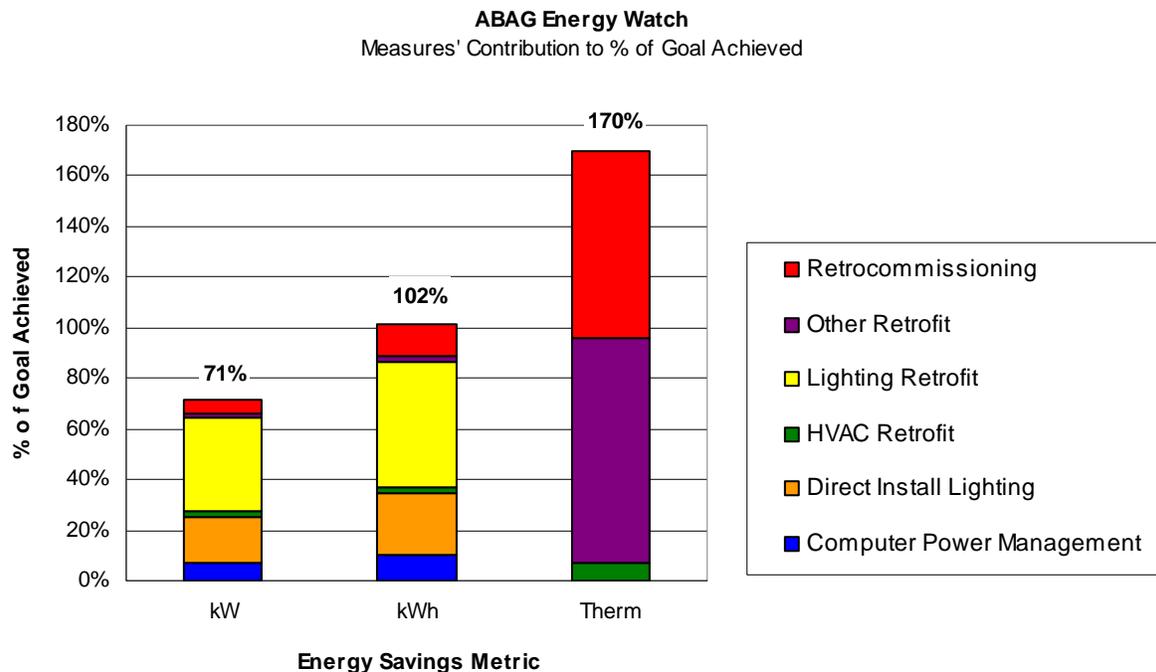
¹ Marin and San Francisco had their own stand-alone Energy Watch programs.

² The conversion factor used to calculate CO₂e emissions reductions was 0.49 lbs of carbon dioxide equivalent per kWh saved (CO₂e/kWh) and 12 lbs of carbon dioxide equivalent per therm saved (CO₂e/therm), and accounts for all greenhouse gases. This conversion factor was applicable to the PG&E supply portfolio in 2005.

development of equipment specifications. The services provided by the Program encompassed over 600 energy efficiency projects and resulted in over 300 installed projects.

The chart below illustrates the range of project types that contributed to the Program’s energy savings achievements, including lighting, HVAC, retrocommissioning, and computer power management.

Figure ES-1. ABAG Energy Watch Partnership Savings Achievements



The Program’s objective was to provide comprehensive, cost effective services to a large number of agencies which have traditionally been slow to participate in energy efficiency programs. Long project development timeframes, market barriers common to the local government sector, and programmatic and coordination requirements associated with utility and non-utility program partners limited the Program achievements during the first 1.5 years of the program term. However, the Program’s planning approach, expertise in a wide variety of energy efficiency strategies and measures, innovative problem solving, and high quality implementation assistance proved to be an effective strategy to address the specialized needs and situations at each agency.

Approximately 85% of the Program savings occurred in the last 12 months of the program term, from May 2008 – April 2009; with over 50% of the total savings actually occurring in the last 6 months of the program from November 2008 – April 2009. Although the project development times were long, the opportunities were also significant; and by consistently and continuously

developing new projects on an on-going basis, a steady stream of savings began to emerge after the initial development phase³.

³ Two agencies experienced implementation delays due to contracting difficulties or a desire to aggregate projects to reduce contracting transaction costs. Although the Program developed the projects and implementation is underway, the substantial savings associated with these projects cannot be counted towards the Program achievements at this time. These projects include 2.7 million kWh worth of energy efficiency savings associated with the Bay Area Rapid Transit (BART) combined energy efficiency and PV projects; and 4.3 million kWh worth of energy efficiency savings associated with the County of Sonoma's aggregated projects which were held for ESCO implementation.

I. PROGRAM OVERVIEW

The 2006-08 Association of Bay Area Governments (ABAG) Energy Watch Partnership (Program) provided energy efficiency technical and policy services to cities, counties and special districts (agencies) in the ABAG membership area. This joint partnership of ABAG and PG&E produced energy efficiency savings in public facilities and promoted energy efficiency community-wide. The program territory covered local governments in the counties of Alameda, Contra Costa, Napa, San Mateo, Santa Clara, Solano, and Sonoma.⁴

A. Program Elements

Technical Facility Services: The Program provided technical assistance to agencies to identify measures to improve the energy efficiency in public facilities, help agency staff implement the measures, and provide financial incentives upon completion of the implementation. The Program provided key technical services including the following:

- ♦ Public facility energy usage analyses.
- ♦ Public facility energy use benchmarking.
- ♦ Energy project identification and financial analyses including walk-through, preliminary, and investment-grade audits primarily in the areas of lighting, HVAC, motors, mechanical and lighting controls (retrocommissioning), and computer power management.
- ♦ Sustained technical assistance including equipment specification, bid support, project installation management support, and rebate application support.

Direct Installation Lighting Services: The Program offered a turn-key lighting retrofit service that identified lighting retrofit opportunities in public facilities, delivered investment-grade lighting audits and design services, provided pre-qualified installation contractors and equipment, facilitated the contracting process for agencies, ensured that installations were held to strict quality control standards, and provided a lucrative financial incentive to agencies (\$0.20/kWh saved, up to 100% of project cost) upon completion of the project.

Energy Efficiency Policy Services: The Program assisted agencies in developing energy efficiency policy and program initiatives to promote energy efficiency within agencies and their wider communities. The Program also conducted local government-focused workshops.

B. Management Structure

The ABAG Energy Watch team included local government organizations⁵ that provided access to the entire target market and consultants⁶ that were highly experienced working with local governments. As the prime contractor, ABAG managed the administration of the program, including overall contracting, budget management, final review and submittal of monthly reports to PG&E, and program invoicing. ABAG staff also led the program marketing efforts and participated in initial enrollment meetings with agencies.

⁴ San Francisco and Marin Counties operated their own stand-alone Energy Watch programs.

⁵ ABAG, Local Government Commission, and the Climate Protection Campaign.

⁶ Energy Solutions, HDR, Cogent Energy, and Lighting Wizards.

As the prime technical implementer, Energy Solutions (ES) initiated and managed all technical services, managed subcontracts with the remaining technical team members, delivered direct services in the area of lighting and direct installation of retrofits, provided rebate application assistance, and provided program administration support to ABAG in the area of reporting and budget management.

C. Marketing Approach

The Program leveraged ABAG's existing relationships and credibility with key elected officials, City Managers, County Managers, and agency staff that participate in the ABAG POWER program⁷ to market Program services. The Program was thus able to target marketing efforts to the most relevant contacts at each agency, reducing marketing costs while successfully recruiting a large number of Bay Area agencies to participate in the program.

The Program also leveraged existing relationships with agencies that were enrolled in the ABAG Local Government Energy Partnership program (LGEP) in 2004-2005, to transition the agencies into subsequent enrollment into ABAG's 2006-08 program.

Finally, a series of regional marketing meetings were held in the fall of 2006 to inform previously enrolled and new agencies about the new features the Program would provide in 2006-08.

D. Service Delivery Approach

The Program offered a wide array of services to agencies, however the actual services delivered to each agency were tailored to the agency's unique needs and requirements. Following is a summary of the Program's general approach to service delivery.

Service Planning and Coordination: For many agencies, the Program produced an agency-wide Energy Assessment Report (EAR) prior to initiating technical services. This report analyzed the utility data for all of the agencies' facilities and provided a benchmark for specific types of facilities that compared the energy use per square foot against the average energy use intensity of similar facilities in the Bay Area. This allowed the Program and the participating agency to focus Program assistance and resources on the facilities that represented the best potential for energy savings.

The Program then worked with agencies to develop an Action Plan that served as a road map for rolling out Program services. The Action Plan listed and prioritized facilities and included specific services to be provided to each facility. The Action Plan also recommended energy efficiency actions that the agencies could undertake independently, including referrals to other energy efficiency programs that offered complementary or different services than the ABAG Program.

⁷ A separate joint powers agency formed to conduct pooled purchasing of natural gas on behalf of local governments and special districts.

In this way, the Program coordinated with and leveraged PG&E resources whenever appropriate. PG&E resources included technical resources (such as the eventually closed PG&E Pools Program) to augment the ABAG program's technical expertise, utility account sales and services representatives to assist in obtaining account information and maintaining consistent contact with participants, and incentive processing support through PG&E in-house staff and technical subcontractors.

The Action Plan was also informed by each agency's unique energy efficiency goals, previous audits performed at the selected facilities, future planned renovations or change of use at the selected facilities, availability of capital improvement budget funds and/or capital financing options, staffing resources, and typical project implementation timelines. The Program strove to provide the most comprehensive approach possible for each agency, consistent with the goals and requirements of the CPUC, PG&E, program management staff, and the agency.

In order to properly manage the large number of activities underway simultaneously, the Program also developed a customized database that allowed Program staff to record agency contacts, facility information, status of individual service requests, progress on implemented projects, and the administrative status of incentive applications. To ensure customer satisfaction, the Program also assigned each agency a single point of contact on the ABAG team who was responsible for approving and coordinating all services provided to that agency.

Facility Assessments: In order to reduce program costs, the Program offered several levels of assessments. For facilities with unclear potential, the program team conducted either a screening interview with facility staff, a walk-through audit, or a preliminary audit. A more labor-intensive "investment-grade" audit was provided only if the savings potential was confirmed through the less costly assessments. Each level of audit provided an increasingly robust assessment of recommended energy efficiency measures, measure costs, energy savings, and project paybacks. Further detail on these services is provided in Section VII.

New Service Development: The Program developed services and work papers for new energy efficiency measures and activities that were not originally offered through PG&E's core programs, in order to explore untapped potential markets and increase the energy efficiency gains in participating agencies. These included computer power management using free software, retrocommissioning controls measures, duct testing and sealing, energy efficient procurement policies, energy efficient equipment specifications, and community-wide energy efficiency policies⁸.

Incentive Processing Support: The Program assisted agencies through each step of the application process, including analyzing which incentive programs would result in the highest rebates for the customer, drafting rebate applications on behalf of the customers, packaging and submitting rebate applications to PG&E on behalf of the customers, providing technical information to PG&E's inspection contractors when necessary, helping to coordinate site visits,

⁸ Ultimately, the Program was unable to implement the duct testing and sealing services due to a conflict between when the final approval was granted and the seasonal (temperature) requirements for the testing. However, computer power management and retrocommissioning projects eventually realized almost a quarter of the Program's energy savings goal and 75% of the Program's natural gas savings goal.

and facilitating the transmittal of necessary invoices and other documentation between the agencies and PG&E.

Financing Support: The Program informed agencies of outside financing options for projects that were unable to be funded with existing capital budgets. In particular, the Program worked with the California Energy Commission’s Low Interest Loan program to ensure that agencies could complete the loan processing steps and approvals with a minimum of confusion and delay. Often, the energy studies and reports produced by the Program were packaged with the loan documents in support of the projects to be financed.

Implementation Support: The Program provided a broad range of services to help agencies overcome typical barriers to project implementation. These services included providing assistance writing staff reports to obtain project approvals from City Councils or Boards of Supervisors, providing information and application assistance for energy efficiency project financing, providing rebate and incentive application assistance, providing technical support through project bid processes and pre-bid conferences, and providing frequent updates and reminders to agency staff regarding project timelines and incentive deadlines. In addition, the Program offered a direct installation (DI) lighting service that provided full service auditing, contracting, and installation management. Program staff was involved in virtually every step of the implemented energy efficiency projects, from project identification and analysis through to project installation.

E. Program Goals

The ABAG Energy Watch program had both resource goals and non-resource targets. The resource goals were energy savings (kW, kWh, and therms) and the non-resource targets were related to energy planning, policy, and education/training.

Resource Goals: Note that the energy savings goals below are gross savings goals. PG&E applied a net-to-gross ratio of between 0.8 – 1.0 to projects’ gross savings values to arrive at the net energy savings values credited towards Program net savings goals.

Table 1. Program Resource Goals

Resource Goal	Definition	Goal
Gross kW Savings	Gross peak demand reduction associated with energy efficiency projects.	5,779
Gross kWh Savings	Gross energy use reduction associated with energy efficiency projects.	25,028,321
Gross Therm Savings	Gross natural gas use reduction associated with energy efficiency projects.	343,610

Table 2. Program Non-Resource Targets

Non-Resource Target	Definition	Target
Enrollees	Local government agencies that sign a formal commitment form to participate in the program.	50
Energy Assessment Reports (EARs)	A summary an agency's facility energy usage and energy costs based on recent utility data. The report highlights high-usage facilities and also provides benchmark values.	15
Technical Assistance	Technical assistance provided to an agency, primarily in the form of energy reporting, audits, energy efficiency measure analyses, project implementation assistance, or incentive application assistance.	30
Energy Policy Packages	Policy assistance provided to an agency, primarily in the form of energy planning assistance, energy policy development, energy ordinance development, or procurement policy development.	6
Workshops	Training and education workshops, seminars, or forums focused on energy issues of interest to local governments.	Up to 6

II. SUMMARY OF PROGRAM ACCOMPLISHMENTS

A summary of Program accomplishments from the contract start (August 18th, 2006) through April 2009 in each of the stated goals and targets is provided below. The Program's energy savings achievements represent an annual reduction in greenhouse gas emissions of approximately 8,830 metric tons of CO₂e⁹, and over the lifetime of the implemented measures the greenhouse gas reduction totals approximately 79,100 metric tons of CO₂e¹⁰. Additional detail for each service and target area is provided in later sections of this report.

⁹ The conversion factor used to calculate CO₂e emissions reductions was 0.49 lbs of carbon dioxide equivalent per kWh saved (CO₂e/kWh) and 12 lbs of carbon dioxide equivalent per therm saved (CO₂e/therm), and accounts for all greenhouse gases. This conversion factor was applicable to the PG&E supply portfolio in 2005.

¹⁰ These lifetime greenhouse gas reduction values assumed an average effective measure life of 12 years for lighting measures, 8 years for retrocommissioning measures, 4 years for computer power management measures, 15 years for HVAC measures, and 10 years for other retrofits.

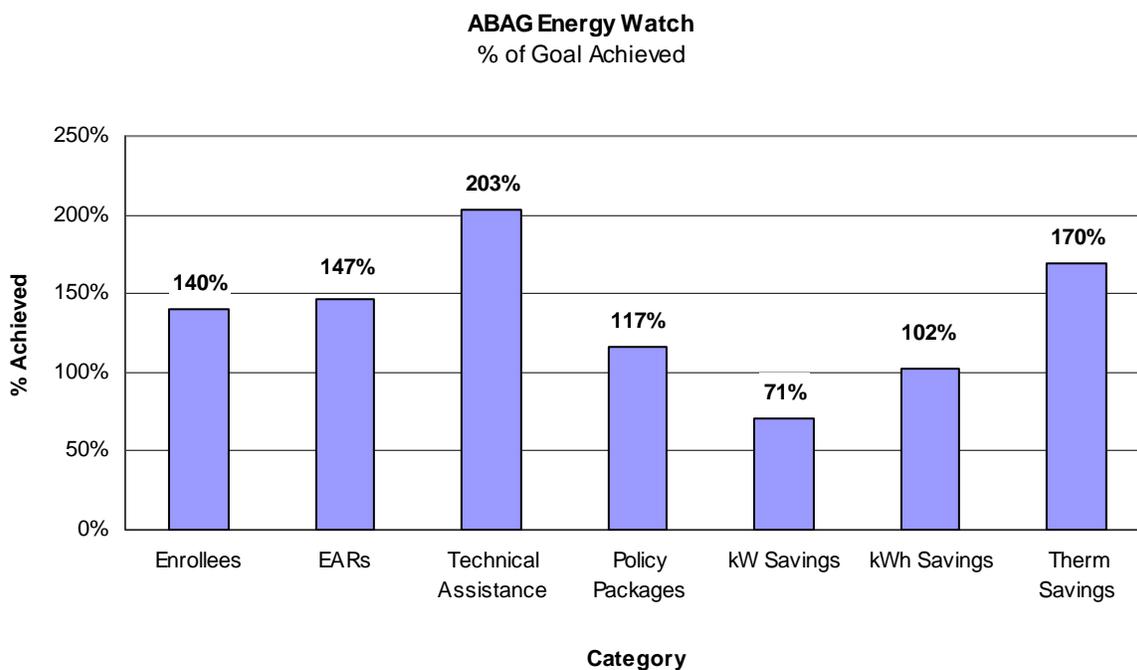
Table 3. Program Achievements

Description	Goal / Target	Achieved*	% of Goal Achieved
Gross kWh Savings**	25,028,321	25,442,684	102%
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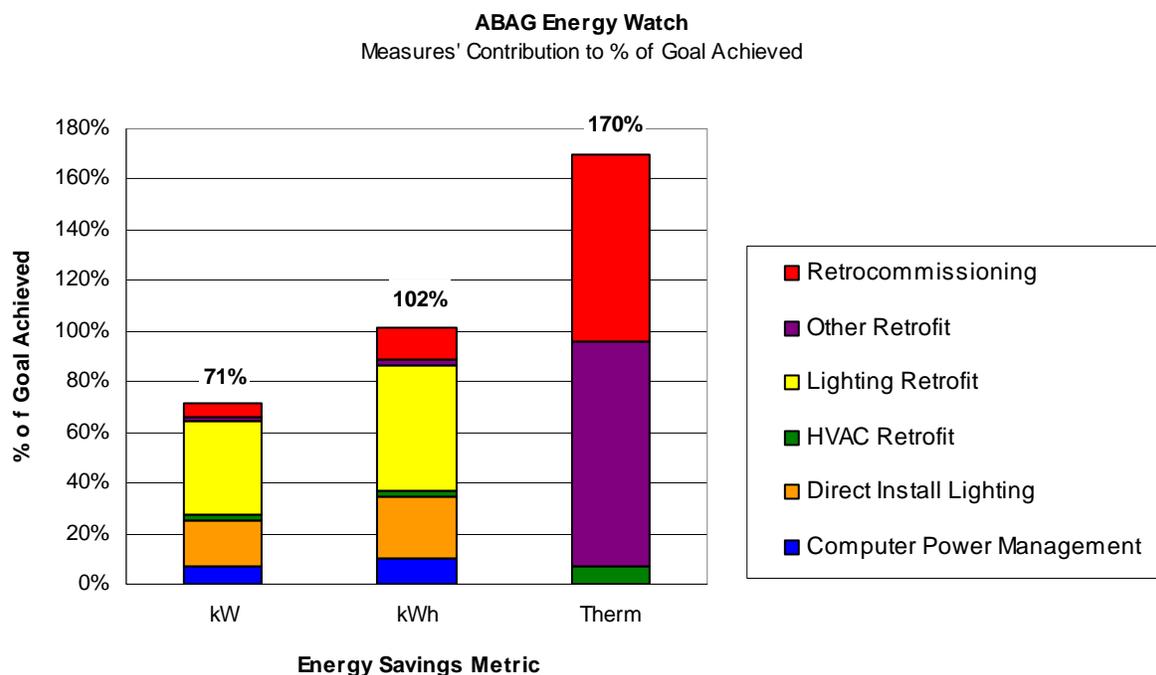
**As of 5/1/09, final approval of approximately 14% of the Program's reported gross kWh and kW savings and approximately 8% of the Program's reported gross therm reductions are pending the completion of PG&E's post-installation technical reviews.

Figure 1. Program Achievements



Within the energy savings category, the Program completed 309 projects for 48 agencies. As shown below, a range of project types contributed to these energy savings achievements, including lighting, HVAC, retrocommissioning, and computer power management. Note that the large therm savings attributed to “other retrofits” is primarily from end-use water conservation measures that had associated benefits in reducing water heating requirements.

Figure 2. Program Savings Achievements



The Program fell short of meeting its peak demand reduction (kW) goal despite exceeding its energy savings (kWh) goal. In order to meet its energy savings goals, the Program included two innovative measures: equipment retrocommissioning and computer power management. These projects delivered among the highest customer values in terms of short payback periods and significant on-going energy cost savings. However, retrocommissioning typically generates energy savings in non-peak hours when systems are not fully loaded as would more often be the case during peak periods. Computer power management creates energy savings by automatically powering down computers that are not in active use, which also tends to occur more often during non-peak hours. Finally, the Program also included facilities with long hours of operation, including medical and detention facilities. Facilities with long operating hours deliver more energy savings per kW demand reduction than is typically found in traditional office environments.

III. LOCAL GOVERNMENT CHALLENGES AND PROGRAM DESIGN IMPLICATIONS

The Program was designed to serve the challenging local government market, which has traditionally been a difficult energy efficiency market to reach. The Program was successful in serving this market – by exceeding its kWh and therm reduction goals, as well surpassing its non-resource targets. However, in order to accomplish this, the Program had to overcome a number of challenges. In addition to facing the standard market barriers facing any energy efficiency project, the Program had to overcome barriers more relevant to the local government

sector. This section discusses these market barriers and their implications for designing local government programs.

A. Market Challenges

The primary challenges to meeting the Program's high energy savings goals were the following:

Limited local government funding and financing options to implement projects: The Program identified a multitude of cost-effective, technically and operationally feasible energy efficiency projects. The Program also provided a comprehensive menu of services to local government agencies to support the implementation of the projects, from project identification and economic analyses to procurement assistance and incentive application support. However, a major constraint on the part of the agencies was their limited capital budgets and financial resources to fund the projects.

Although the California Energy Commission (CEC) offers generous fixed rate, low-interest loans (as of 5/1/09, the interest rate is 3.95%) of up to \$3 million per application to local governments for energy efficiency projects; and although these loans can pay for up to 100% of the project cost and loan payments are calculated to be equal to or less than the expected energy savings – the financing is offered on a reimbursement basis. Therefore, agencies must still provide initial capital funds for a period of at least a month or more.

Moreover, some local governments are unwilling to engage in project financing because they view it as an unnecessary financial risk. This is a matter of finance department staff lacking confidence in or knowledge about the dependability of energy efficiency project savings, as well as the common challenge of cost savings on operating budgets often being disconnected from capital funds budgets.

Long lead time for project implementation: This market barrier was a major challenge to completing projects within the three-year program cycle. A detailed discussion of this barrier is provided in the following section.

Lack of local government staff time to manage project procurements and project implementation: The majority of our Program contacts were facility managers, operations managers, and other facility staff. Very few of our contacts were specifically charged with managing energy use and reducing utility costs. Rather, energy efficiency activities tended to be addressed tangentially as part of their responsibilities over equipment upgrades and operations and maintenance.

Therefore, even if the project cleared the hurdle of being approved for funding, projects tended to experience additional resource challenges during the procurement and installation phase. The involved process of putting projects out to bid requires a significant investment of staff resources that the Program could not substantially alleviate. Our assistance during this phase primarily consisted of assisting with staff reports to obtain project approval from City Councils or Boards of Supervisors, developing equipment specifications, participating in bidders conferences, responding to questions regarding the technical scope of work, and participating in bid walk-throughs.

Due to the requirement of significant time and resources, often these projects experienced a long time delay while agency staff tried to garner the necessary procurement and project management support while continuing to fulfill their core responsibilities. For example, in the case of one large county agency, contracting difficulties led the agency to try to complete energy efficiency retrofit projects in almost 50 facilities with one bid and one contract. In this case, the process of auditing the facilities, designing the projects, bidding the work, selecting the installation contractor and negotiating a contract, and completing the installation took over 3 years.

The need for high level support of energy efficiency goals: The Program's main contacts at the agencies were supportive of energy efficiency goals and projects, but energy efficiency was often a lower priority for their management and key decision-makers. This led to barriers in the form of insufficient project funding, insufficient allocation of staff resources to initiate and complete projects, and lack of consensus to make timely decisions about energy projects. High level support for energy efficiency from elected officials and key decision-makers is essential for overcoming many of the barriers to implementation.

Regulatory or safety constraints due to the special nature of certain local government facilities: In addition to the barriers described above, local government agencies also often have responsibility over facilities that, while representing good energy efficiency opportunities, do not lend themselves to completing retrofit projects quickly.

- ◆ Lighting retrofits in hospital clinical areas requires OSHPD permit approvals which involve submitting floor plans showing the existing and proposed location of new fixtures, the certification of a Professional Engineer (P.E.) on the retrofit plans, and often a 6-month or longer review, prior to approval.
- ◆ Projects in detention centers require security clearance and the accompaniment of a security guard not only for the audit, but also for the installation work.
- ◆ Motor controls projects for pools in recreation centers require compliance with or approval from county health departments that regulate the water quality in public pools.
- ◆ Lighting fixtures in public parking garages must often be designed with not only appropriate illumination and energy savings, but also anti-vandalism and security considerations.

Additional challenges, some of which may be unique to the ABAG Program due to our specific program territory, agencies, and selected measures include the following:

Overlapping programs that competed for local government customers: One challenge was less a constraint or barrier to local governments' uptake of efficiency projects, but rather a programmatic barrier or inefficiency. The Program offered comprehensive services to its local government participants that covered virtually every type of efficiency equipment. However, other energy efficiency programs also offered services that often overlapped with one or more components of the ABAG Program, or overlapped with the customer sector that the ABAG Program served. This redundancy and lack of clear jurisdiction required Program staff to spend time and resources negotiating solutions with other programs.

Atypical financing arrangements such as PPAs to fund energy efficiency are not yet widely used the public sector: Combining solar photovoltaic (PV) projects and energy efficiency into a single Power Purchase Agreement (PPA) can be an effective financing mechanism to get efficiency projects installed. In the case on one major transit agency, the process of negotiating the PPA terms between the agency and PPA provider, as well as additional delays associated with the PV side of the project (including structural review of shade structures to support the PV system) delayed the energy efficiency project installation for over a year. Moreover, projects that are financed through PPAs require long term access to facilities on which equipment is installed, despite the fact that mass transit facilities have Federal security and access restrictions.

Transit facilities' special requirements: Beyond the general local government barriers, transit agencies have some additional needs and unique challenges as well:

- ◆ There is a need for an established protocol to retrofit very expensive specialty fixtures like explosion-proof fixtures for bus maintenance areas.
- ◆ Within 50 feet of a railroad, rail safety training is required for efficiency retrofit contractors to work even though the work is performed in a building.
- ◆ In some cases, there is a need to specify new fixtures that can resist pressure washing.

High level of technical assistance and customized solutions required: In order to be successful, the Program had to offer innovative, highly customized solutions and assistance, as illustrated by the following examples:

- ◆ Repeated equipment demonstrations were necessary for some customers before proceeding with even small installations.
- ◆ The Program worked with a lighting manufacturer to design and build custom fixtures.
- ◆ A Program team member (Energy Solutions) helped demonstrate LED street lights with the City of Oakland and DOE. This measure has the potential for huge energy and maintenance savings for local government agencies over the next 2-5 years.
- ◆ One project experienced unusual interference problems between the new retrofitted electronic ballasts and the wireless building controls, which required very specific testing and trouble-shooting.
- ◆ Public agencies configure their computer systems differently and many agencies required customized solutions. A high level of technical assistance and trouble-shooting, in some cases including testing of multiple types of software and completion of a pilot project, was often necessary before broad implementation occurred.
- ◆ The contractor for one of the Program's largest projects repeatedly missed repeated deadlines until the agency's legal department threatened to call their performance bond. This situation required the Program to step in and bring the contractor's top management into the situation, as well as manage the installation on a day-to-day basis for over two months.

Equipment availability issues: Some of the more popularly specified lighting retrofit equipment required a four month lead time at the end of 2008, leading to unexpected delays in the project installation schedules.

Complex and lengthy utility rebate processing: This challenge is not due to local government processes, but rather to procedural barriers built into the rebate application and project approval process. The process of applying for incentives, obtaining approval for the proposed project, verifying the pre- and post-installation conditions, and finally receiving payment for the completed projects often added several hours of program administrative labor per project. Moreover, the multitude of steps involved in some of the rebate programs, including obtaining signatures on rebate program agreements and often multiple pre- and post-installation inspections, introduced additional time lags because over-extended local government staff often did not have the resources to manage the process or respond in a timely fashion.

For example, one of the standard utility rebate programs typically involved a 2 month delay from the time the rebate application (with full project descriptions and detailed engineering analyses) was submitted to the time the project was approved to begin installation. During this time, the utility deployed a third party energy consultant to verify that the Program had described the existing conditions (equipment, operating schedules, etc.) correctly, despite the fact that the Program was itself a PG&E partnership program. An additional agreement form needed to be executed upon approval of the application. At the end of project installation, this program often required two to three months (or more) to verify the energy savings and complete the rebate payment.

Moreover, although Program staff endeavored to facilitate and simplify the process on behalf of the agencies, the Program was not integrated into all of the key transactions – and thus was not in control of critical aspects of the process that impacted project timing and completion (such as pre- and post-installation reviews and issuing agreements between PG&E and the agency). Although utility staff worked to streamline and integrate the Program team more closely with the internal rebate program process, this complexity burdened projects with administrative inefficiencies.

Miscellaneous Delays: Putting the more academic challenges aside, unexpected delays in the project installation schedules also arise from unforeseen personal reasons and major incidents. For example, when a passenger on a major transit agency line was shot by the transit agency's own security staff, resolving this issue occupied the transit agency's management staff to the exclusion of many other matters including their high profile, combined PV and energy efficiency project. As another example, the agency champion of one of the Program's largest portfolios of energy efficiency projects decided to ride his bike across the country at a key stage in the project, thus delaying the completion of a significant portion of the Program's projects. Although these specific examples are extreme, random occurrences such as these occur not infrequently and can have a great impact on the ability of a program to complete projects in a timely fashion.

B. Project Implementation Timelines

The time involved in completing projects is extremely lengthy. The majority of the Program accomplishments were a result of projects that took up to two years to develop prior to actual implementation, with the vast majority of the Program savings installed during the last six months to one year of the program term. Local government agencies in particular are saddled with the additional time penalty of having to obtain City Council or Board of Supervisor

approval for most facility improvement projects, as well as with the necessity of following a competitive bidding process.

The various steps and timeframes required to complete projects are summarized below. These implementation schedules assume customers are able to prioritize and champion projects. Note that for projects that were held and aggregated to reduce the burden of bidding processes, time frames stretched to two years or more (this affected agencies including Bay Area Rapid Transit, Alameda County, Sonoma County, and the Alameda-Contra Costa Transit District).

Program Enrollment: Up to 2 months, depending on required signatures and noticing of any agenda items for public meetings.

Energy Analysis Report (EAR): Approximately 2 months, depending on the quality of the utility data and the availability of the customer's facility square footage data.

Action Plan: This document that provided a project rollout strategy typically required 2 weeks to 1 month to finalize.

Auditing: 1-2 months to complete an investment grade lighting audit and 3-4 months to complete an investment grade HVAC audit or retrocommissioning audit.

Council or Board Approval: 6 weeks to 2 months to prepare a staff report and obtain City Council or Board of Supervisors approval to proceed with a project.

Direct Install Lighting: 3-6 months from initial audit to project completion, depending on the installation contractor's availability and the ease of access to customer facilities.

Lighting Retrofits: Typically 6 months to 1 year for reviewing and approving the project, issuing an RFP or bid and awarding a contract, submitting and obtaining approval for energy efficiency incentives from PG&E, and installation. This timeframe is extended if the project is subject to additional regulatory or safety considerations.

HVAC and Boiler Retrofits: Typically 1 year or more for reviewing and approving the project, issuing an RFP or bid and awarding a contract, submitting and obtaining approval for energy efficiency incentives from PG&E, and installation.

Retrocommissioning: Typically 1 year or more for reviewing and approving the project, issuing an RFP or bid and awarding a contract to a controls contractor, submitting and obtaining approval for energy efficiency incentives from PG&E, and installation.

Computer Power Management: 6 months to 1 year for the customer to choose from multiple CPM strategies, test and coordinate with IT departments, deploy the measure in multiple facilities, and submit and obtain approval for energy efficiency incentives from PG&E.

Power Purchasing Agreements: 2-3 year timeframe to complete PV and energy efficiency feasibility studies, find financing partners, negotiate agreement terms, complete structural studies, and install projects.

These typical timeframes help explain the Program's lengthy ramp up period for the first year and half, during which less than 10% of the final energy achievements were completed. Approximately 85% of the Program savings occurred in the last 12 months of the program term, from May 2008 – April 2009; with over 50% of the total savings actually occurring in the last 6 months of the program from November 2008 – April 2009. Although the lead times are long, the opportunities are also significant; and by consistently and continuously developing new projects on an on-going basis, a steady stream of savings begins to emerge after about 1.5 years.

At the same time, due to this long development period, many projects that began later in the program term were not able to be completed before the Program closed. Yet other agencies experienced delays due to contracting difficulties or a desire to aggregate projects to reduce contracting transaction costs. Although the projects are underway and will be completed in the coming months, the substantial savings associated with these projects cannot be counted towards the Program achievements. Notable projects in this category include the following:

- ♦ **Bay Area Rapid Transit (BART), combined energy efficiency and PV projects:** The Program developed 2.7 million kWh and 248 kW worth of energy savings projects for Bay Area Rapid Transit facilities. These projects, which combined energy efficiency and solar PV, broke ground on actual construction in April 2009, 13 months after the Program began developing the projects.
- ♦ **Sonoma County, aggregated projects held for ESCO implementation:** The Program developed 4.3 million kWh and 230 kW worth of energy savings projects for the County of Sonoma. The County chose to bundle the implementation of all the projects into a single ESCO contract that was executed 2.5 years after the Program delivered the initial audits. As of the end of 2008, an ESCO had been selected to implement the projects.

C. Program Design Implications

With respect to the challenges described above, in some cases the Program's comprehensive approach to planning, developing, and implementing projects was an effective solution. However, additional improvements and recommendations can also be offered.

Develop additional project financing options: There is a clear need for additional financing resources to help fund the upfront capital cost of energy efficiency projects.

- ♦ In addition to the usual loan mechanisms, there is an opportunity to leverage agencies' growing interest in solar power to install more energy efficiency projects. Combining energy efficiency and solar in PPAs is a way to address the agencies' interest in renewable energy and use large amounts of energy efficiency to make the solar cost effective. In the case of BART's combined solar PV and energy efficiency projects, more than 80% of the energy savings occur from efficiency and less than 20% are from renewable power generation.

- ♦ Many agencies are considering using ARRA¹¹ federal stimulus grants for PV installations. Combining PV and energy efficiency can leverage the additional federal funding and multiply the benefits of the funding.
- ♦ Restrictions on crossover spending of Public Goods Charge (PGC) funds between renewable energy and energy efficiency are resulting in significant lost opportunities. Matching funding should be put in place to pursue combined efficiency and PV projects.

Alleviate the burden of procurement processes: Offering quarterly rounds of bulk procurement process across multiple projects and multiple customers through a third party entity may allow for economies of scale and facilitate more timely implementation of projects. Unlike cases where single agencies wait to accumulate a large number of projects to bid out together, the inclusion of multiple agencies and multiple projects would allow (and in fact require) the bid process to be initiated on a regular basis. This would ideally be coupled with providing a third-party owner's representative to help the customer oversee the successful implementation of the project.

Establish interdisciplinary energy teams and a consistent vision: The agencies that accomplished the most number of projects and the highest variety of projects typically had cultivated teams of staff from different departments to move projects forward. For example, one county agency essentially formed an impromptu working group that included staff from facilities, engineering, IT, facilities leasing, and the County Manager's Office. This allowed the agency to tap into energy efficiency opportunities across the board while obtaining support from the highest levels of management, and the agency was able to complete retrocommissioning, lighting, direct installation lighting, and computer power management projects in facilities including the hospital, detention facility, office buildings, and even leased facilities.

Conversely, agencies that lack cross-departmental support or champions often face difficulties in getting projects installed. Many of the most beneficial projects, such as computer power management, require not only an agency energy champion to initiate the project, but must also involve the resources of the agency's IT group and the cooperation of each individual department that will be affected. This is also important in order to ensure that projects meet the needs of the stakeholders involved, as well as to reduce possible interdepartmental competition for resources or territory.

Comprehensive services for many customers vs. targeted services to a few customers: The Program's objective was to provide comprehensive, cost effective services to a large number of agencies which have traditionally been slow to participate in energy efficiency programs. Both the comprehensive nature of the Program and the lack of resources within many agencies necessitated significant attention in order to move projects forward.

As will be described in Section VI, the services provided by the Program encompassed over 600 energy efficiency projects and resulted in over 300 installed projects. The Program scoped out almost 46 million kWh, 6,300 kW, and 770,000 therms worth of large and small energy efficiency opportunities, in order to realize the 25 million kWh, 4,100 kW, and 580,000 therms worth of energy savings projects that were implemented during the program term. Moreover,

¹¹ American Reinvestment and Recovery Act of 2009.

our services were not restricted to facilities projects, but also included energy policy and planning assistance as well as educational workshops.

Due to a combination of the project development timeframes associated with our comprehensive approach, the market barriers common to the local government sector, and the programmatic and coordination requirements associated with utility and non-utility program partners, the Program achieved limited savings during the first 1.5 years of the program term. In order to produce earlier results, the Program could have chosen to focus on only large projects and implement measures primarily through direct installation services which provide a high level of control over the implementation timeline and contractor responsiveness. However, this approach would have limited our ability to serve a large number of agencies. In addition, the cost effectiveness of the program would have been reduced because direct installation services require a relatively higher level of Program staff resources and higher incentive levels for a given amount of savings.

Instead, the Program’s planning and analysis documents, expertise in a wide variety of energy efficiency strategies and measures, innovative problem solving, and high quality implementation assistance proved to be an effective strategy to address the specialized needs and situations at each agency. This approach provided steady results after the initial development phase, and ultimately the Program met its energy and therm savings goals.

Based on the large number of projects scoped out but not yet implemented, there still remains significant untapped potential in local government facilities. As discussed above, while the lead times are long, by consistently and continuously developing new projects, measures, and services on an on-going basis, a steady stream of savings begins to emerge after about 1.5 years.

IV. PROGRAM ENROLLMENT

The Program enrolled 70 agencies, exceeding its enrollment target. Although services were also provided to agencies that did not formally enroll, the Program considered formal enrollment a helpful step in committing the participant to actively supporting the Program goals.

Formal “enrollment” consisted of the local government agencies signing a commitment form to participate in the program. This enrollment form, while nonbinding and containing a minimum of mandatory requirements, served as an agreement and acknowledgement on the part of the enrollees that the agency would commit sufficient staff resources to support the successful delivery of Program services, provide information and access to its facilities, and be willing to consider implementing identified projects that were economically and operationally feasible. The enrollment form also served as an official PG&E utility data release, which allowed the Program to access the agency’s utility records for analysis purposes.

Table 4. Enrolled Agencies

Agency	Enrollment Date
Alameda-Contra Costa (AC) Transit District	23-Oct-06
Association of Bay Area Governments	7-Nov-06
Bay Area Rapid Transit	21-Dec-07

Agency	Enrollment Date
Belmont-San Carlos Fire Department	15-Apr-07
City of Antioch	12-Dec-06
City of Belmont	3-Apr-07
City of Benicia	30-Nov-06
City of Berkeley	2-Nov-06
City of Brentwood	6-Mar-07
City of Burlingame	5-Feb-07
City of Calistoga	10-Jan-07
City of Cloverdale	4-Dec-06
City of Concord	27-Aug-07
City of Cotati	1-Nov-06
City of Daly City	2-Oct-07
City of Dixon	15-Nov-06
City of El Cerrito	24-Oct-07
City of Emeryville	24-Dec-06
City of Fremont	20-Nov-06
City of Gilroy	12-Dec-06
City of Hayward	14-Apr-08
City of Lafayette	31-Jul-07
City of Livermore	27-Nov-06
City of Menlo Park	23-Jul-07
City of Millbrae	18-Oct-06
City of Milpitas	23-Oct-06
City of Morgan Hill	13-Oct-06
City of Mountain View	9-Apr-07
City of Oakland	5-Jun-07
City of Petaluma	30-Oct-06
City of Piedmont	17-Oct-07
City of Pleasanton	20-Nov-06
City of Redwood City	15-Nov-06
City of Richmond	29-May-08
City of Rio Vista	21-Feb-08
City of Rohnert Park	24-Oct-06
City of San Carlos	2-May-07
City of San Jose	21-Feb-07
City of San Leandro	20-Jul-07
City of San Mateo	22-Nov-06
City of Santa Rosa	14-Nov-06
City of Saratoga	20-Oct-06
City of Sebastopol	9-Oct-06
City of Sonoma	12-Oct-06
City of South San Francisco	16-Jan-08
City of St. Helena	10-Jan-07
City of Sunnyvale	11-Oct-06
City of Union City	10-Jul-07
City of Vacaville	7-Nov-06
City of Vallejo	16-Jun-08

Agency	Enrollment Date
City of Walnut Creek	25-Oct-07
Contra Costa County Mosquito & Vector Control District	22-May-08
County of Alameda	19-Oct-06
County of Contra Costa	13-Nov-06
County of Napa	29-Jun-07
County of San Mateo	31-Oct-06
County of Santa Clara	23-May-07
County of Sonoma	29-Oct-06
Golden Gate Bridge Highway and Transportation District	19-Oct-06
Highlands Recreation District	17-Jan-07
Housing Authority County of Alameda	26-Sep-06
Oakland Redevelopment Agency	26-Jun-08
Regional Administration Facilities Corp. (RAFC)	8-Oct-06
Solano Irrigation District	29-Feb-08
Sonoma County Water Agency	30-Jan-07
Sonoma Valley Health Care District	30-Oct-07
Town of Atherton	12-Dec-06
Town of Hillsborough	22-Jan-07
Town of Moraga	6-Dec-06
Town of Windsor	12-Oct-06

The agencies that achieved the most significant energy savings in each of the three energy savings metrics are shown in the charts below. The 10 agencies that achieved the highest kWh savings contributed 79% of the energy savings towards the program’s 102% accomplishment; the 10 agencies that achieved the highest kW savings contributed 51% of the peak demand reduction towards the program’s 71% accomplishment; and the 10 agencies that achieved the highest therm savings contributed 169% of the natural gas reduction towards the program’s 170% accomplishment.

As noted previously, the large therm savings attributed to “other retrofits” is primarily from end-use water conservation measures that had associated benefits in reducing water heating requirements.

Figure 3. Agencies with the Highest Energy (kWh) Savings

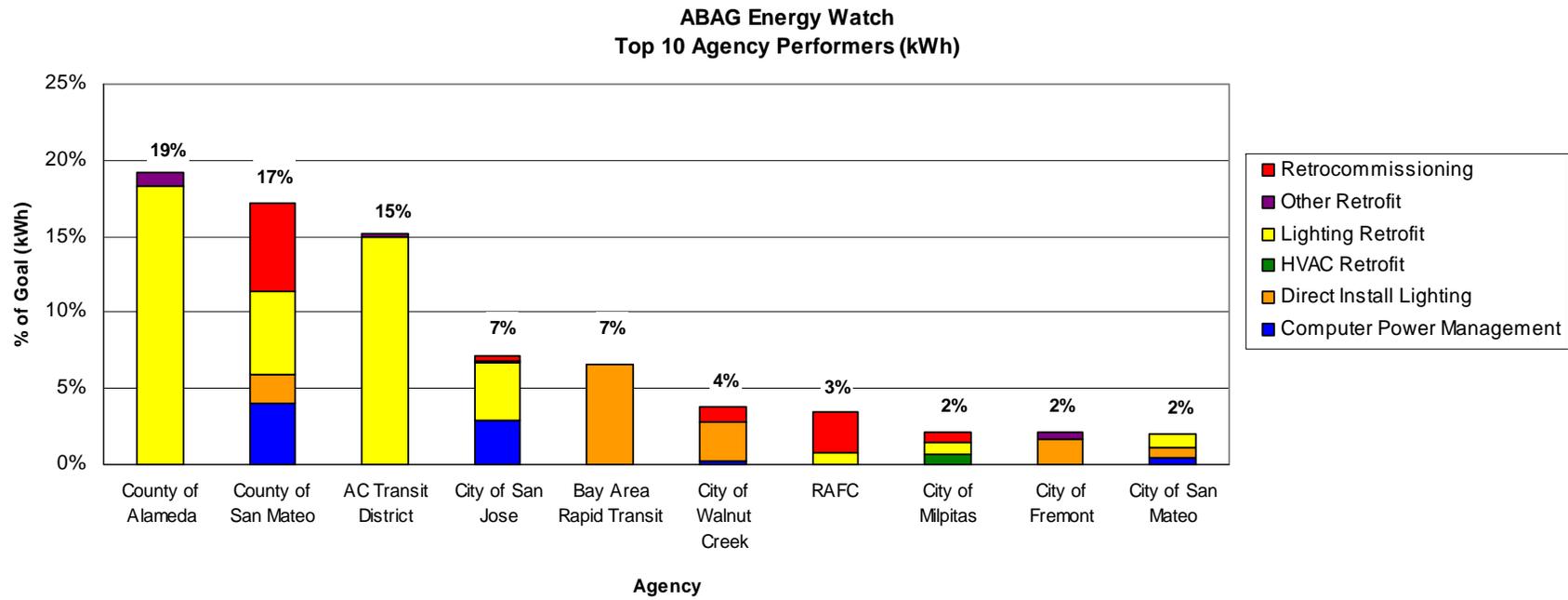


Figure 4. Agencies with the Highest Peak Demand (kW) Savings

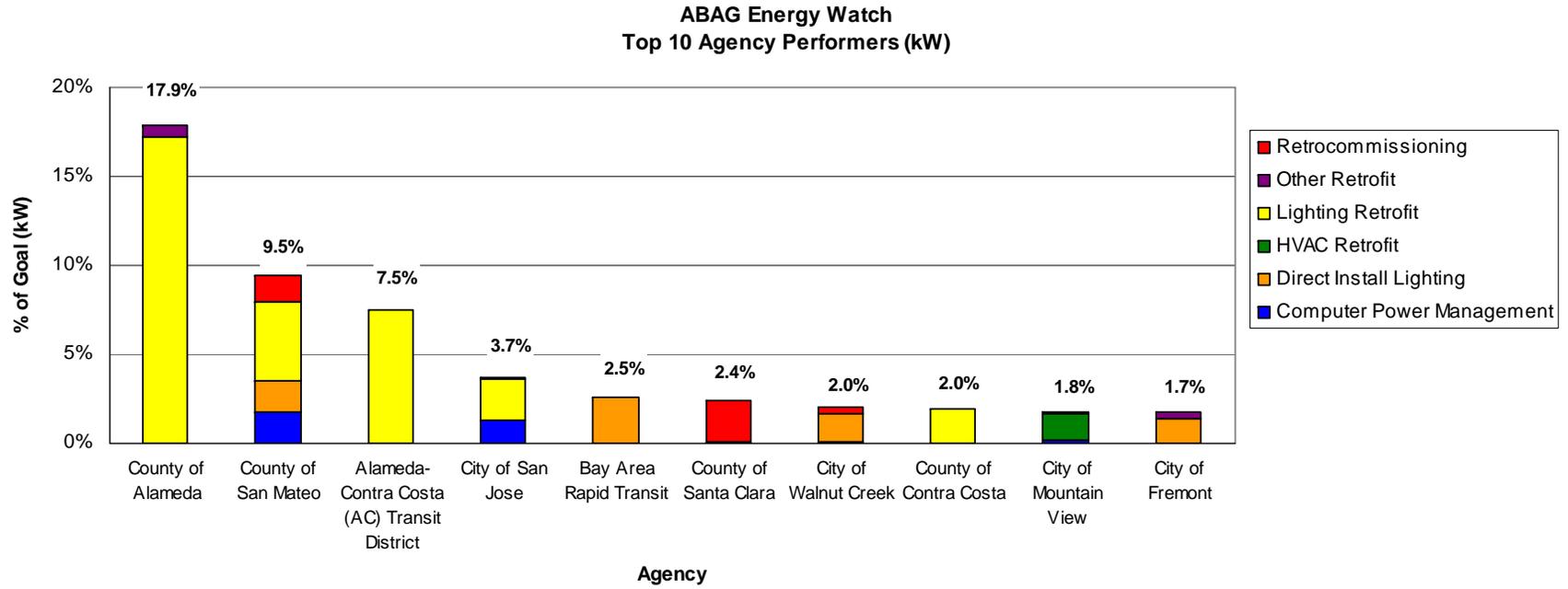
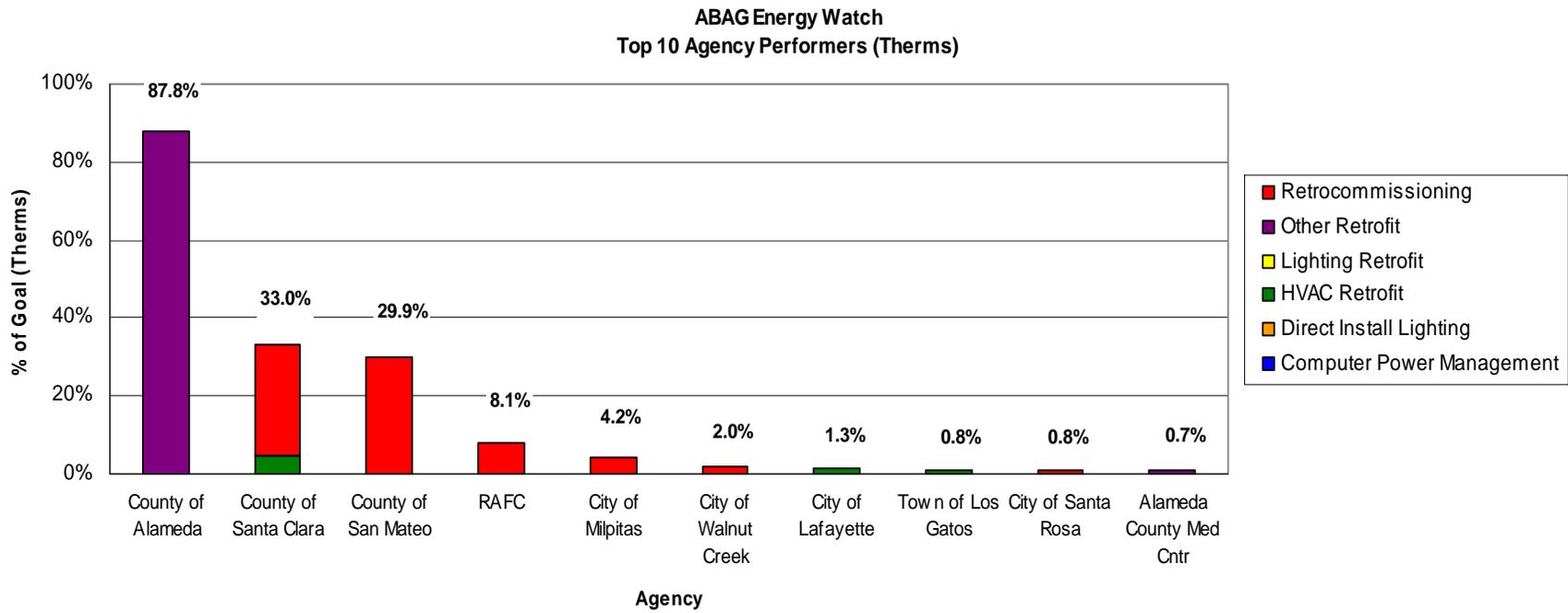


Figure 5. Agencies with the Highest Therm Savings



V. ENERGY ASSESSMENT REPORTS (EAR)

The Program initiated services for a number of local governments with an analysis of the overall energy use and energy utility costs of the agency's public facilities. This analysis was delivered in the form of an Energy Assessment Report (EAR). The Program completed 22 EARs, exceeding its EAR target.

To produce an EAR that established an agency's current existing facility energy cost and energy usage, the Program collected and analyzed the agency's PG&E utility data and facility square footage data. The EAR included benchmark information (\$/sq ft, kWh/sq ft, etc.) so that the agency could compare the actual facility energy use against the typical energy use in similar facilities. The EARs were an extremely valuable tool that helped the Program identify facilities with good potential for energy efficiency savings.

Table 5. Agency EARs

Agency	EAR Completion Date
City of Antioch	12-Mar-07
City of Belmont	13-Jul-07
City of Brentwood	30-Oct-07
City of Burlingame	27-Aug-07
City of Calistoga	8-Jun-07
City of Concord	12-Oct-07
City of Daly City	29-Oct-07
City of Fremont	19-Mar-07
City of Gilroy	31-Aug-07
City of Milpitas	8-Mar-07
City of Mountain View	25-Oct-07
City of Redwood City	6-Mar-07
City of Rohnert Park	22-May-07
City of San Leandro	5-Nov-07
City of Saratoga	19-Sep-07
City of South San Francisco	24-Apr-08
City of St. Helena	31-May-07
City of Union City	5-Nov-07
City of Walnut Creek	24-Jun-08
County of Napa	1-Oct-07
Town of Atherton	10-Oct-07
Town of Moraga	9-Apr-07

VI. TECHNICAL ASSISTANCE SUMMARY

A. Technical Services

The Program provided a range of services to participating agencies. The primary program services were preliminary and investment-grade lighting and HVAC audits, computer power management services, direct installation of lighting projects, and retrocommissioning audits.

These services and the results of the Program’s efforts in each area are described in detail in following sections.

Additional services included assistance with bid processes, review of and development of retrofit project designs, incentive application assistance, third party review of audit reports, and development of equipment specifications.

B. Results

The services provided by the Program encompassed over 600 energy efficiency projects in 61 agencies and resulted in over 300 installed projects in 48 agencies. The energy savings associated with the identified projects, as well as the energy savings associated with projects ultimately installed as a result of the Program’s work is summarized below.

Table 6. Summary of Technical Assistance Results

All Program Services	# of Agencies	# of Projects	Energy Savings		
			kWh	kW	Therms
Identified Projects	61	606	45,752,093	6,342.9	767,224
Installed Projects	48	309	25,442,684	4,122.3	582,739

The Program provided technical assistance to the 61 agencies listed below and exceeded its target. Note that the Program completed more than one technical service for many agencies. However, for the purpose of claiming accomplishments towards the programmatic targets, the Program claimed only the first instance of a completed service per agency. More detailed information on the technical assistance provided to agencies was included in the Program’s monthly reports to the CPUC.

Table 7. Agencies Receiving Technical Assistance Services

Agency
Alameda County Medical Center
Alameda-Contra Costa (AC) Transit District
Association of Bay Area Governments
Bay Area Rapid Transit
City of Antioch
City of Belmont
City of Benicia
City of Berkeley
City of Brentwood
City of Burlingame
City of Calistoga
City of Cloverdale
City of Concord
City of Cotati
City of Daly City

Agency
City of Dixon
City of El Cerrito
City of Fremont
City of Hayward
City of Lafayette
City of Livermore
City of Menlo Park
City of Milpitas
City of Morgan Hill
City of Mountain View
City of Oakland
City of Petaluma
City of Piedmont
City of Pleasanton
City of Redwood City
City of Rohnert Park
City of San Carlos
City of San Jose
City of San Leandro
City of San Mateo
City of San Ramon
City of Santa Rosa
City of Saratoga
City of Sebastopol
City of Sonoma
City of South San Francisco
City of Sunnyvale
City of Vacaville
City of Vallejo
City of Walnut Creek
Contra Costa County Mosquito & Vector Control District
County of Alameda
County of Contra Costa
County of Napa
County of San Mateo
County of Santa Clara
County of Sonoma
Golden Gate Bridge Highway and Transportation District
Highlands Recreation District
Oakland Redevelopment Agency
Private Senior Facilities (Direct Install Lighting)
Regional Administration Facilities Corp. (RAFC)
Sonoma County Water Agency
Town of Atherton
Town of Hillsborough
Town of Los Gatos

In the less than 10 cases where an enrolled agency received no significant technical services from the Program, this was due to factors such as enrollment late in the program cycle which restricted the time available to fully identify, initiate, and complete services; extremely limited opportunities for energy efficiency projects due to the low number and/or small size of an agency's facilities; or lack of active uptake of Program services on the part of the agency staff.

VII. ENERGY EFFICIENCY RETROFIT SUMMARY

A. Preliminary Audits

A Preliminary Audit confirmed that a particular facility had good energy savings potential before deploying technical resources for an Investment Grade Audit. Preliminary Audits required a site visit and were often conducted with the assistance of facility or maintenance staff that were familiar with the location and operation of the building's lighting and HVAC equipment.

B. Investment Grade Audits

Investment Grade Lighting Audit: If the Preliminary Audit indicated that a lighting retrofit project would result in cost-effective energy savings, the Program conducted an Investment Grade Lighting Audit to develop detailed recommendations, estimates for energy savings, energy cost savings, rebates, and project installation costs. The Investment Grade Lighting Audits included a site visit to collect information on existing equipment specifications and operation schedules, as well as to conduct a detailed lighting survey. Investment Grade Lighting Audits also required the assistance of facility or maintenance staff that were familiar with the location and operation of the building's lighting equipment.

Investment Grade Lighting Audits included lighting design considerations. The resulting deliverable included recommended retrofits for each existing fixture type and estimates of the existing lighting system's energy use and energy cost, the future lighting system's energy use and energy cost, project installation costs, project rebates, and project payback. The deliverable also typically included retrofit equipment specifications in order to facilitate the project bid process and/or the in-house purchase of equipment.

Investment Grade HVAC Audit: If the Preliminary Audit indicated that an HVAC retrofit project could result in cost-effective energy savings, the Program conducted an Investment Grade HVAC Audit to develop detailed recommendations, estimates for energy savings, energy cost savings, rebates, and project installation costs. The Investment Grade HVAC Audits included a site visit to collect name-plate equipment data, information on equipment operation / maintenance / scheduling, and in some cases included taking actual power usage readings to gain a better understanding of how equipment was loaded. Investment Grade HVAC Audits often required the assistance of facility or maintenance staff that were familiar with the location and operation of the building's HVAC equipment.

Once the required data was collected, analysis strategies such as weather bin data analysis, systems modeling, or other methods of engineering estimation were utilized to determine potential energy savings for a given measure. The resulting audit report included descriptions of the existing and proposed HVAC equipment; recommended energy efficiency measures (EEMs);

and estimates of the existing HVAC equipment’s energy use and energy cost (per EEM), the future HVAC equipment’s energy use and energy cost (per EEM), project installation costs, project rebates, and project paybacks.

C. Results

The Program conducted preliminary or walk-through audits for 24 agencies and completed investment-grade audits for 18 agencies. The energy savings associated with projects identified in these audits, as well as the energy savings associated with projects ultimately installed as a result of the completed audits is summarized below.

Table 8. Summary of Energy Audit Results

Energy Efficiency Retrofit Audit Results	# of Projects	Energy Savings		
		kWh	kW	Therms
Identified Projects	231	16,463,224	2,387.5	96,462
Installed Projects	84	8,448,319	1,474.1	4,507

VIII. COMPUTER POWER MANAGEMENT SUMMARY

A. Computer Power Management Services

Computer power management (CPM) projects save large amounts of energy at very little cost and have broad applicability across all types of large customers¹². CPM software allows Information Technology (IT) network administrators to manage and monitor sleep and other power consumption settings on computers and display monitors from a centralized server.

The Program worked with agencies that represented good opportunities for energy savings from CPM projects. The Program addressed common IT staff concerns including the software’s capability to exclude certain computers from going to sleep (e.g. police and fire departments) and ensuring that “sleep” settings did not interfere with regularly scheduled software or security patches. The Program provided objective, expert technical assistance to help agencies choose an energy and cost saving CPM solution that best fit their resources and needs, including facilitating pilot testing of free and paid CPM software options.

The Program also offered a rebate for CPM measures that had more flexible eligibility requirements than the rebate that was available directly from PG&E. This provided agencies with a monetary incentive to implement free CPM software, which did not require a large monetary investment on the part of the agency.

B. Results

The Program provided CPM information to 26 agencies and completed projects at 11 agencies. The energy savings associated with projects identified through these efforts (multiple CPM

¹² Typically customers with 100 or more networked computers.

projects were identified for several agencies), as well as the energy savings associated with projects ultimately installed as a result of our assistance is summarized below.

Table 9. Summary of CPM Results

Computer Power Management Results	# of Agencies	# of Projects	Energy Savings		
			kWh	kW	Therms
Identified Projects	26	32	5,174,565	766.4	-
Installed Projects	11	14	2,615,215	415.0	-

IX. DIRECT INSTALLATION SUMMARY

A. Direct Install Service Delivery Approach

The Program designed, implemented, and managed a municipal direct install (DI) lighting service. The DI service helped agencies overcome the barriers of implementing lighting projects on their own by essentially allowing them to outsource the entire project, from the audits through to project management and installation.

The Program utilized a select group of experienced lighting contractors that agreed to specific program protocols and fixed measure pricing. Agencies were therefore able to avoid difficulties associated with technical decisions, vendor screening, quality control, and other time commitments. In addition, a lucrative energy savings rebate of \$0.20/kWh (with a cap set at 100% of project cost) was built into the program design in order to motivate normally cautious agencies to approve the retrofit projects. The agencies paid only a portion of the lighting retrofit cost (if applicable), with incentives paid directly to contractors. Due to this comprehensive strategy, agencies were able to complete retrofit projects that would not have been able to be completed otherwise.

As part of implementing this service, the Program completed the following tasks:

- ◆ Developed service policies and procedures, quality control measures, participation eligibility criteria, project prioritization criteria, and energy savings targets.
- ◆ Identified and pre-approved lighting installation contractors.
- ◆ Negotiated fixed unit prices with the participating contractors.
- ◆ Provided detailed lighting audits.
- ◆ Developed retrofit recommendations.
- ◆ Worked directly with public agencies to explain the recommendations and incentive structure.
- ◆ Developed detailed work orders for installation contractors using a customized DI database and worked with installation contractors to ensure they fully understood the scope of work and procured the correct equipment.
- ◆ Obtained authorizations from public agencies to proceed with the installation work.
- ◆ Provided construction management and quality control services.

Unlike many Third Party Programs, DI services were not the Program’s primary service offering. However, DI was an excellent tool to serve a large number of agencies and was also an effective way to complete small projects and eliminate contracting barriers. DI installations accounted for about 130 projects and served 27 agencies, but represented only 25% of the Program’s energy savings. The number of facilities per agency that were provided DI services ranged from 1 – 16, and the average number of projects completed per agency was 5.

B. Results

The Program initiated DI activities for 34 agencies and completed projects (often multiple projects) at 27 agencies. The energy savings associated with projects identified in these efforts, as well as the energy savings associated with projects ultimately installed as a result of our DI service is summarized below.

Table 10. Summary of DI Results

Direct Lighting Installation Results	# of Agencies	# of Projects	Energy Savings		
			kWh	kW	Therms
Identified Projects	34	176	7,031,949	1,220.5	-
Installed Projects	27	129	6,090,486	1,055.4	-

X. RETRO-COMMISSIONING (RCx) SUMMARY

A. RCx Service Delivery Approach

If an EAR showed unexpectedly high energy usage at a facility with relatively new equipment or if maintenance staff received frequent complaints regarding the comfort level from occupants at a particular facility, the facility was considered a prime candidate for retrocommissioning (RCx) services. RCx measures optimize the use of operational controls for existing mechanical equipment and lighting.

The Program first conducted facility screening interviews with facility operations and maintenance staff. If the screening process confirmed that there were good opportunities for energy savings from RCx measures, the Program conducted an Investment Grade RCx Audit to develop detailed recommendations, estimates for energy savings, energy cost savings, rebates, and project installation costs.

Investment Grade RCx Audits typically involved two site visits. The first site visit was for the purpose of gathering equipment data and information, setting up trending software to create a running record of mechanical system performance, installing portable data loggers, and assessing existing mechanical and lighting controls. The second site visit was for the purpose of completing functional tests and retrieving the trend data and data loggers.

After the second site visit, the Program developed a detailed list of RCx issues at the facility, recommended an appropriate resolution for each issue, estimated the energy and cost impacts resulting from the resolution of each issue, and recommended a priority order for their resolution.

B. Results

The Program initiated RCx services for 13 agencies and completed projects (in some cases, multiple projects) at 10 agencies. The energy savings associated with projects identified through these efforts, as well as the energy savings associated with projects ultimately installed as a result of full audits is summarized below.

Table 11. Summary of RCx Results

Retrocommissioning Service Results	# of Agencies	# of Projects	Energy Savings		
			kWh	kW	Therms
Identified Projects	13	32	3,880,787	336.2	270,150
Installed Projects	10	17	3,242,348	315.3	253,554

XI. OTHER SERVICES SUMMARY

As noted previously, the Program provided a range of additional services to participating agencies. These services included assistance with bid processes, review of and development of retrofit project designs, incentive application assistance, third party review of audit reports, and specifications development. These remaining services generated the remainder of the Program's energy savings accomplishments as summarized below.

Table 12. Summary of Other Service Results

Other Services	# of Projects	Energy Savings		
		kWh	kW	Therms
Identified Projects	141	13,201,567	1,632.2	400,612
Installed Projects	65	5,046,316	862.4	324,678

XII. ENERGY EFFICIENCY POLICY SUMMARY

The Program completed 7 energy policy packages, exceeding its target. A summary of our work is included below. More detailed information about each policy activity was provided in the Program's monthly reports.

Table 13. Completed Energy Efficiency Policy Packages

Agency	Policy Activity Description	Month Completed
City of Pleasanton	Completed assistance associated with the Energy Element of the City's General Plan.	Jun-07
City of San Jose	Completed a package of education, procurement, and contracting information related to equipment commissioning.	Nov-07

Agency	Policy Activity Description	Month Completed
City of Sebastopol	Developed and presented a draft Residential Energy Conservation Ordinance (RECO) to the City Council.	Jul-08
All Agencies / PG&E	Completed an update and summary of Local Government Programs and Initiatives, which builds upon and updates Appendix A of the 2002 report entitled, <i>A Review of Local Government Energy Efficiency Programs in California</i> .	Aug-08
County of San Mateo	Participation and technical review of the County of San Mateo's Utilities and Sustainability Task Force (USTF) Draft Energy Strategy.	Sep-08
City of Dixon	Reviewed and provided technical recommendations on the Strategic Initiatives section of the City of Dixon's Energy Plan.	Oct-08
All Agencies / PG&E	Developed and produced a Demand Response informational flyer directed toward local governments. The flyer was distributed to ABAG members.	Nov-08

XIII. EDUCATIONAL OUTREACH SUMMARY

The Program conducted two local government workshops that focused on climate action plans and the contribution that energy efficiency projects could make towards reducing greenhouse gas emissions. Workshop materials and evaluation summaries were provided previously in the Program's monthly reports.

Workshop #1, Implementing Energy Efficiency Projects and Developing Climate Action

Plans: The Program developed and conducted its first workshop on June 12th, 2007 at the Pacific Energy Center in San Francisco. A majority of the 46 attendees (excluding speakers) consisted of representatives from local government agencies. 95% of the respondents ranked the overall workshop as 'Excellent' or 'Very Good'. The announcement, agenda, attendee list and evaluation summary were submitted with the Program's June 2007 monthly report to the CPUC.

Workshop #2, Implementing Energy Efficiency Projects and Developing Climate Action

Plans: The Program conducted its second workshop on July 11th, 2007 at the Green Building Exchange in Redwood City. A majority of the 66 attendees (excluding speakers and Program staff) consisted of representatives from local government agencies. We achieved a 90% return rate (60) for completed evaluation forms. 84% of the respondents ranked the overall workshop as 'Excellent' or 'Very Good'. 93% ranked the workshop as 'Valuable' or 'Very Valuable'. The announcement, agenda, attendee list and evaluation summary were submitted with the Program's July 2007 monthly report to the CPUC.