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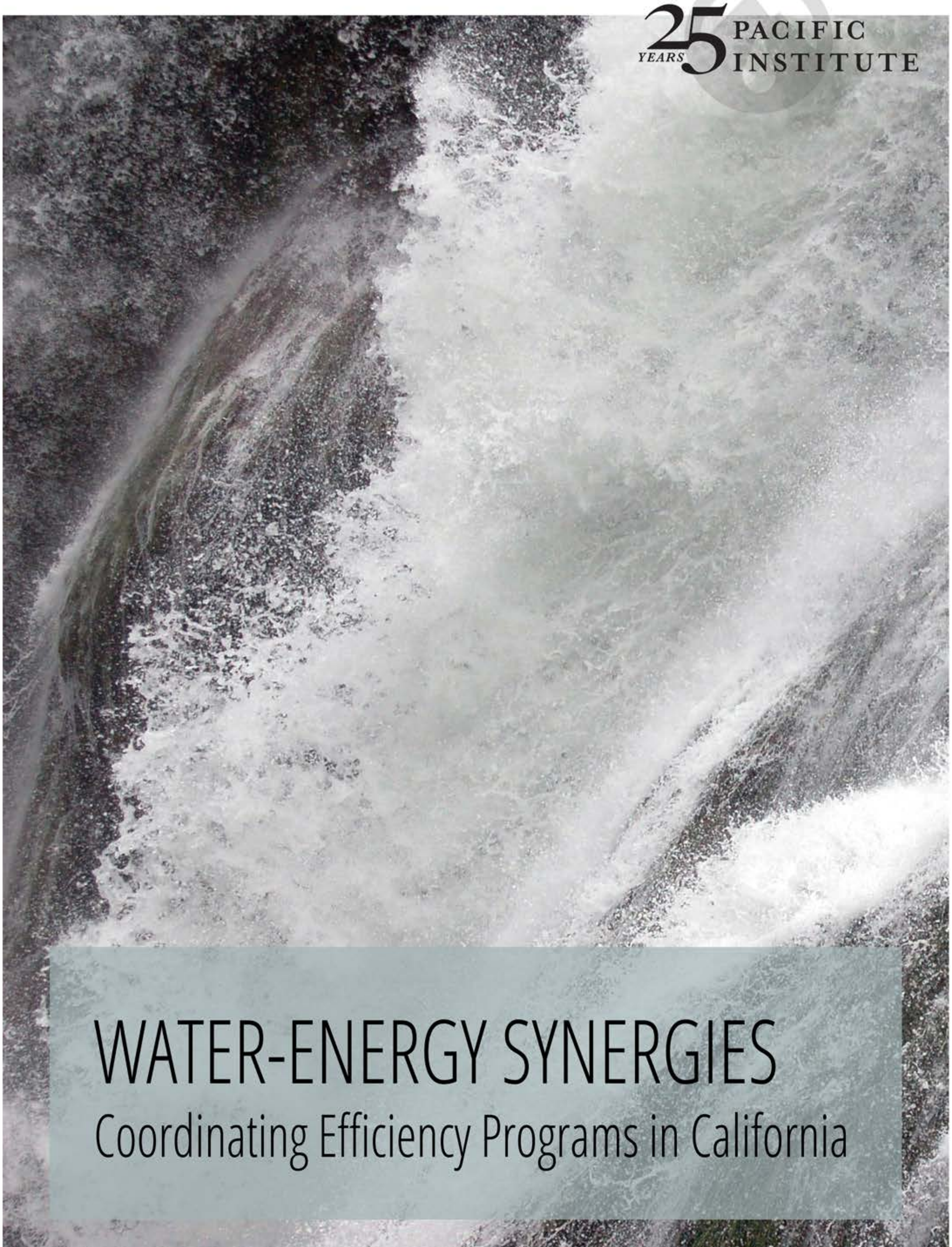

# WATER-ENERGY SYNERGIES

## Coordinating Efficiency Programs in California

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Authors: Heather Cooley and Kristina Donnelly

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**Pacific Institute**
654 13th Street, Preservation Park
Oakland, California 94612
www.pacinst.org
Phone: 510.251.1600
Facsimile: 510.251.2206

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# About the **Authors**

### Heather Cooley

Heather Cooley is the co-director of the Pacific Institute's Water Program. Her research addresses the connections between water and energy, sustainable water use and management, and the impacts of climate change on water resources. Ms. Cooley is a recipient of the Environmental Protection Agency's Award for Outstanding Achievement and serves on the Board of Directors of the California Urban Water Conservation Council. She also serves on the California Commercial, Industrial, and Institutional Task Force and the Urban Stakeholder Committee. Ms. Cooley received a B.S. in Molecular Environmental Biology and an M.S. in Energy and Resources from the University of California at Berkeley.

### Kristina Donnelly

Kristina Donnelly is a research associate with the Pacific Institute's Water Program. Her research addresses the social, economic, and policy implications of water conservation, conflict management over transboundary water resources, and water policy in North America and the Middle East. Ms. Donnelly received a B.S. in Mathematics from American University and an M.S. in Natural Resources and Environment from the University of Michigan. She was the 2008/09 Sea Grant Fellow with the Great Lakes Commission in Michigan. Before joining the Institute, she worked for the Center for Transboundary Water Management at the Arava Institute for Environmental Studies in southern Israel, conducting transboundary water research and facilitating educational opportunities between Israelis, Jordanians, Palestinians, and other nationalities.

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# 1 Introduction

Water has several unique characteristics that make its provision and energy use intensive. In particular, water is heavy. It also has a high heat capacity, meaning that it requires a lot of energy to raise its temperature. These characteristics are particularly significant in the West, where water supplies are scarce and population centers are often separated by hundreds of miles and thousands of feet in elevation. In California, for example, an estimated 19% of electricity use, 32% of all natural gas consumption, and 88 million gallons of diesel fuel consumption each year are related to water (CEC 2005). To put these numbers in perspective, consider that leaving the hot water running for 5 minutes uses as much energy as operating a 60-W light bulb for 14 hours.

California has improved the efficiency of its water use substantially over the past 25 years. Despite these improvements, current water use remains wasteful. Even today, millions of old inefficient toilets and household fixtures remain in use. California businesses still rely on wasteful equipment and practices. Nearly 60% of all cropland in California still uses inefficient flood irrigation (Orang et al. 2005). Widespread conservation and efficiency improvements are possible in every sector – in our homes, businesses, and on our farms (Gleick et al. 2003, 2005; Cooley et al. 2008, 2009; Christian-Smith et al. 2010; CALFED 2006; DWR 2005). In many cases, these savings can be captured at lower cost than building new, or expanding existing, supply (Gleick et al. 2003, Cooley et al. 2010, Equinox Center 2010).

Several studies have demonstrated that saving water saves energy and that these savings can be highly cost effective. The California Energy Commission, for example, found that water-efficiency improvements could save as much energy as some of the existing energy efficiency programs in California but at about half the cost (CEC 2005), suggesting it is cheaper to save energy through water conservation and efficiency measures than through current and planned energy efficiency programs. A 2010 Pacific Institute analysis found that implementing a set of water conservation and efficiency measures that could reduce annual water use by 320,000 acre-feet could also save 2.3 billion kWh of electricity and 87 million therms of natural gas each year. The electricity savings alone are equivalent to the annual use of 309,000 average California households. Additionally, research supported by the California Public Utilities Commission (CPUC) also found significant energy savings that could be achieved through water-efficiency improvements (GEI Consultants/ Navigant Consulting, Inc., 2010a and 2010b, ECONorthwest 2010).

Indeed, energy savings, and the associated cost savings, can make many water efficiency measures cost effective. The classic example is the front-loading clothes washer. Front-loading clothes washers use about 35% less water than new, conventional washers (EPA 2013). However, the water savings – and the associated cost savings – alone may not be large enough to cover the higher cost of these machines (although this is increasingly less true, as their costs come down and water costs rise). Yet, front-loading clothes washers also have major energy savings because reducing water use means that less energy is needed to heat that water. The cost savings from the reduction in energy use makes front-loading clothes washers highly cost-effective.

Coordinating water and energy efficiency programs may also help California meet several statewide policy objectives. In 2006, for example, the California legislature passed Assembly Bill 32, the Global Warming Solutions Act, requiring the state to reduce greenhouse gas emissions to 1990 levels by 2020. This law committed the state to a program of steadily reducing greenhouse gas emissions by cutting current emissions and preventing future emissions associated with growth. Additionally, the California legislature passed SBx7-7, the Water Conservation Act of 2009, to address persistent concerns about water availability. The law sets an overall goal of reducing urban per capita water use by 20% by December 31, 2020. Coordinating water and energy efficiency efforts provides an opportunity to leverage the efforts of local, regional, and state entities to achieve these goals.

In recent years, several organizations have demonstrated interest in improving coordination among the water and energy sectors to capture these efficiencies. For example, the American Council for an Energy-Efficient Economy (ACEEE) and the Alliance for Water Efficiency (AWE) brought together key people from the water and energy efficiency fields to develop a blueprint for future joint efforts and to envision a policy agenda that could drive actions at the federal, state, local, and watershed levels. One of the recommendations of the blueprint, released in 2011, was to promote collaboration among groups interested in furthering water and energy efficiency (ACEEE and AWE 2011). Likewise, the California Urban Water Conservation Council (CUWCC), in its most recent Strategic Plan, noted that a key priority for their work is to assist members in identifying opportunities to partner with energy utilities on programs that save both water and energy (CUWCC 2011). Additionally, in 2011, the Water Research Foundation launched the California Water and Energy Coalition (CalWEC) to promote collaboration between water, wastewater, and energy utilities in California.

Despite these efforts, coordinated water and energy efficiency programs are still fairly uncommon. Several studies have identified some of the barriers to developing and implementing these programs. For example, a recent ACEEE and AWE report highlights some of the challenges of coordinated programs, including limited funding, challenges coordinating with different entities, and difficulty identifying metrics and quantifying savings (Young and Mackres 2013). A recent report from CPUC staff identified problems with program evaluation and embedded energy metrics (White and Zafar 2013). The California Sustainability Alliance (2013) finds that one of the barriers to better coordination is the physical disconnect between where water is conserved and where energy is reduced – e.g., because water is imported over long distances, water savings in one region can save energy at pumps in another region. Thus, they note that "it's unclear which energy utility should fund water conservation or gets credit for associated energy savings."

The Pacific Institute initiated a survey of water and energy managers to better understand barriers to coordinated programs in California. The results of the survey are included here. In addition, we provide several case studies to highlight examples of how coordinated programs are being implemented around the state. These case studies capture a diverse set of efficiency measures in both Southern and Northern

California and include indoor and outdoor measures in residential and commercial settings. Based on the surveys and case studies, we conclude with a set of recommendations for overcoming barriers to coordinated programs. We note that the focus of this report is on programs that address customer end-use efficiencies, not energy and water savings within utility operations.

# 2 Barriers Survey Methods

To develop the survey, we conducted a literature review of studies on the energy-water nexus to identify barriers to coordinated water and energy conservation and efficiency programs. Although this paper focuses on California, the literature review included studies from across the United States. In total, several dozen studies were reviewed.

We also conducted in-depth interviews with water and energy efficiency experts and practitioners, including representatives from water utilities, energy utilities, state agencies, consulting firms, academic institutions, and non-governmental organizations (NGOs). In total, nine people were interviewed, all of whom were selected based on experience working in California. Interviewees were asked to speak generally about barriers they have encountered. The objective of the interviews was to try to identify barriers that may not have been captured in the literature. Through the interviews and literature review, we identified a total of nearly 50 barriers. Because there was considerable overlap among these barriers, we were able to narrow them down to a total of 15.

We then developed an online survey to better understand the relative importance of these barriers (see Appendix A). The survey asked participants to rank each potential barrier according to the respondent's perception of its significance: "not a barrier," "slight barrier," "moderate barrier," and "significant barrier." Each ranking was then assigned a numerical value, ranging from 1 for "not a barrier" to 4 for "significant barrier." A weighted average score was then calculated for each barrier. Participants were also allowed to select "not applicable" for a particular barrier. These responses were ignored when calculating the weighted average. We included an open-ended question for respondents to note whether there were any other barriers not captured in the survey. Finally, the survey asked respondents for other basic information, including his/her employer's location and whether he/she works primarily in the water and/or energy sector.

One objective of the survey was to evaluate whether there were any differences in the ranking of barriers among survey respondents. We grouped survey respondents by region (Northern or Southern California) and by sector (i.e., those working primarily in water, those working primarily in energy, and those working in both water and energy).[1] To evaluate regional differences, we used a standard t-test. To evaluate differences by sector, we used an analysis of variance (ANOVA), which is useful in comparing three or more means (groups or variables) for statistical significance. For both the ANOVA and t-test, the means were statistically different if the p-value was less than or equal to 0.05.

[1] Here, the water sector refers to those working in both water and wastewater.

The online survey was active for approximately 10 weeks, from 3 May 2013 to 10 July 2013. It was widely distributed through several avenues, including personal e-mail and the Pacific Institute's website and social media accounts. The survey was also distributed to members of the CUWCC and CalWEC.

In addition to the survey, we developed four case studies of coordinated programs in California. These cases were selected to demonstrate programs targeting customer end-use efficiencies and represent a diverse set of efficiency measures in both Southern and Northern California. For these case studies, we conducted detailed interviews with program partners. In total, 13 people were interviewed for the case studies.

# 3 Survey Results and Discussion

There were a total of 76 respondents to the survey, representing a diverse mix of water and energy professionals (Figure 1). Fifty-five percent of respondents work for a utility; of those, the majority (69%) work for a water utility, while 24% work for a utility that provides both water and energy service, and only 7% work for an energy utility. About 11% of those that responded work for a private consultant, and 10% work for a state or federal agency. Those working for non-profit organizations and in academia accounted for 9% and 7% of survey respondents, respectively. Figure 2 shows that the majority of respondents (73%) work with urban systems, although 24% work with both urban and agricultural systems and only 3% work exclusively with agricultural systems.

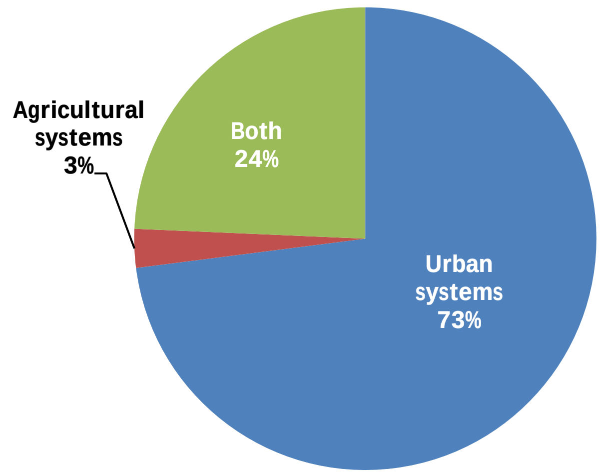


**Figure 1. Respondent's Primary Area of Work, by Percent**

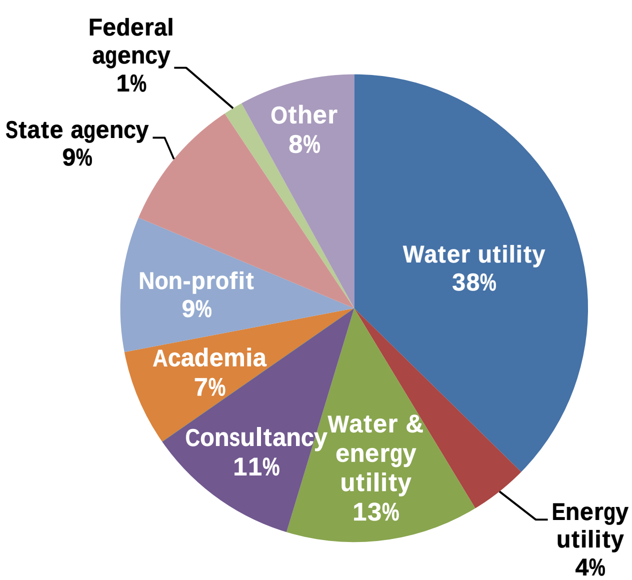


**Figure 2. Respondent's Organizational Identity, by Percent**

## Most Significant Barriers

As described above, the survey asked participants to rank each potential barrier, and each ranking was assigned a numerical value, ranging from 1 for "not a barrier" to 4 for "significant barrier." The weighted average response for each of the barriers ranged from 2.3 to 3.1. As shown in Table 1, however, opinions were varied. All barriers included in the survey were rated as a significant barrier by at least 11 respondents. Likewise, at least four respondents replied "not a barrier" for each of the potential barriers. These findings suggest that the relative importance of these

### Table 1. Survey Results

| Barrier | Not a Barrier | Slight Barrier | Moderate Barrier | Significant Barrier | N/A | Total Responses | Mean Response |
|---|---|---|---|---|---|---|---|
| **Water sector has limited or inconsistent funding available to invest in combined programs** | 8% (6) | 17% (13) | 24% (18) | 47% (35) | 2% (2) | 74 | 3.14 |
| **Limited staff time** | 5% (4) | 15% (11) | 36% (26) | 38% (28) | 4% (3) | 72 | 3.13 |
| **Insufficient guidance about how to equitably allocate costs and benefits among project partners** | 5% (4) | 16% (12) | 34% (25) | 40% (29) | 2% (2) | 72 | 3.13 |
| **Water-related pricing policies (e.g., few mechanisms for cost recovery and concern about revenue stability)** | 7% (5) | 18% (13) | 32% (23) | 42% (30) | 0% (0) | 71 | 3.10 |
| **Lack of established relationship between potential water and energy partners** | 6% (5) | 22% (17) | 25% (19) | 39% (29) | 5% (4) | 74 | 3.03 |
| **Insufficient guidance on how to quantify water, energy, and cost savings** | 10% (8) | 20% (15) | 30% (22) | 38% (28) | 0% (0) | 73 | 2.96 |
| **Poor quality or insufficient data to quantify water and energy savings** | 12% (9) | 16% (12) | 34% (25) | 35% (26) | 1% (1) | 73 | 2.94 |
| **Inability to share customer data/customer privacy concerns** | 16% (12) | 17% (13) | 32% (24) | 30% (22) | 2% (2) | 73 | 2.79 |
| **Significant temporal and spatial variability in determining water, energy, and cost savings** | 9% (7) | 24% (18) | 38% (28) | 23% (17) | 4% (3) | 73 | 2.79 |
| **Too much emphasis on getting perfect information before starting programs** | 17% (13) | 25% (19) | 21% (16) | 32% (24) | 2% (2) | 74 | 2.71 |
| **Energy sector has limited or inconsistent funding available to invest in combined programs** | 16% (12) | 20% (15) | 29% (22) | 25% (19) | 8% (6) | 74 | 2.71 |
| **Difficult to account for trade-offs that may occur (e.g., choosing between programs that save 10 kwh/1 gallon and 1 kwh/10 gallons)** | 9% (7) | 34% (25) | 28% (21) | 20% (15) | 6% (5) | 73 | 2.65 |
| **Customers are unaware or do not care that there is a connection between water and energy** | 15% (11) | 30% (22) | 26% (19) | 24% (18) | 4% (3) | 73 | 2.63 |
| **Large number of water utilities within the energy utility's service boundaries make it difficult to coordinate activities** | 18% (14) | 29% (22) | 27% (20) | 18% (14) | 5% (4) | 74 | 2.49 |
| **Service area boundaries do not match up** | 27% (20) | 24% (18) | 28% (21) | 15% (11) | 4% (3) | 73 | 2.33 |

Note: Number in parentheses indicates the number of respondents. In order to create the weighted average, each ranking was assigned a numerical value, ranging from 1 for "not a barrier" to 4 for "significant barrier."

barriers is likely to vary depending on a wide variety of potential factors. This study was not designed to identify these factors, although future work may be needed in this area.

Five barriers scored higher than 3.0, indicating a moderate to significant barrier using our scoring method (see Figure 3). These include (ranked from highest to lowest score):

1. Water sector has limited or inconsistent funding available to invest in combined programs (score of 3.14).
2. Limited staff time (score of 3.13).
3. Insufficient guidance about how to equitably allocate costs and benefits among project partners (score of 3.13).
4. Water-related pricing policies, e.g., few mechanisms for cost recovery and concern about revenue stability (score of 3.10).
5. Lack of established relationship between potential water and energy partners (score of 3.0).

Barriers one and two are related to the availability of financial resources for efficiency programs. This may, however, reflect a failure to prioritize and invest resources in conservation and efficiency programs. Water conservation and efficiency typically represent a small percentage of the water utility's budget. An analysis of eight large utilities in the western United States found that, on average, conservation and efficiency expenditures represent about 1 percent of total water budgets (WRA 2003). A detailed analysis of water efficiency expenditures in California has not been conducted. However, the Metropolitan Water District of Southern California (MWD), which delivers an estimated 1.7 million acre-feet of water per year to member agencies serving 19 million people in Southern California, budgeted $20.0 million per year for water conservation programs in fiscal years 2012/2013 and 2013/2014 (MWD 2012), or about 1 percent of total annual expenditures.[2] MWD members also invest in efficiency programs, although these expenditures have not been compiled. Efficiency expenditures by energy utilities in California are considerably higher. In 2012, for example, efficiency expenditures by California's energy utilities exceeded $1 billion (EEGA 2013, CMUA 2013). Decisions about budget allocations among utility programs are driven largely by internal processes and reflect utility policies and priorities. Therefore, these barriers can be overcome by realigning utility budgets to support greater investment, in both staff time and money, in water conservation and efficiency programs. Additionally, as will be highlighted in the case studies, partnerships between and among water and energy utilities can reduce costs by streamlining program offerings, eliminating redundancy, and capturing economies of scale.

The third barrier is related to allocating costs and benefits among project partners. In California, energy investor-owned utilities (IOUs) submit efficiency budgets that must be approved by the California Public Utilities Program (CPUC). Once the efficiency programs have been implemented and energy savings verified, these savings are then compared to energy efficiency targets for each of the utilities. Because of spatial and even temporal variability in the energy intensity of water systems, there is some uncertainty about the energy savings associated with water conservation and efficiency programs and no agreed upon methodology to estimate these savings.

Furthermore, CPUC regulations are such that ratepayer funds, e.g., efficiency funds, can only be used to fund programs that benefit those ratepayers. Water in California, however, travels long distances, in some cases crossing multiple utility service areas. As a result, the energy savings from water conservation and efficiency

[2] This estimate doesn't include the administrative costs for the program, including outside service, vendor fees, marketing, and staff time.

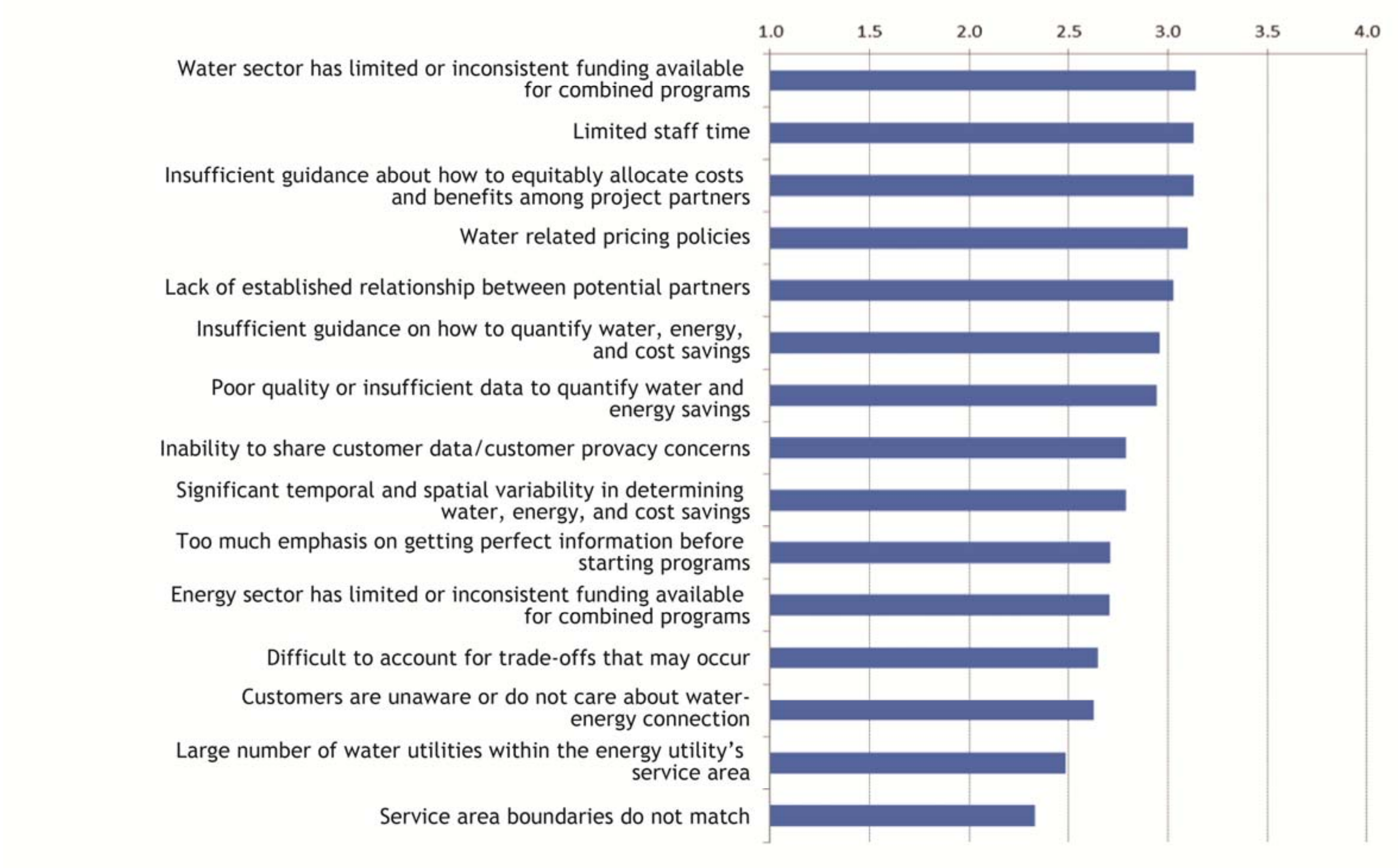


**Figure 3. Barriers Survey, Mean Response**

Note: Each response was assigned a numerical value; a value of 1 indicates the respondents did not think the issue was a barrier, while a value of 4 indicates that respondents thought the barrier was significant.

measures may occur outside of the energy utility's service area. Under current regulations, an energy utility cannot pay or claim credit for savings outside of its service area. For example, Southern California Edison cannot claim credit for energy savings that may accrue to the Department of Water Resources (DWR) because less water is pumped through DWR facilities. To overcome this barrier, state agencies, including the CPUC and CEC, should develop guidelines for allocating water, energy, and cost savings among project partners.

Finally, water-related pricing policies were identified as a significant barrier. The overriding issue is that conservation and efficiency can reduce water demand, thereby reducing revenue and contributing to revenue instability. This is a growing concern in California in light of factors that have reduced water demand (the economic downturn, ongoing conservation and efficiency efforts, and recent drought) in combination with factors that have increased cost (rising energy costs, the need to repair and replace aging infrastructure, and stricter water quality requirements). While it is unclear whether and to what degree these trends will continue, some water managers are beginning to refer to this as the "new norm" (Donnelly and Christian-Smith 2013). Several rate experts point out that properly designed rate structures can promote revenue stability while also providing an incentive to use water efficiently. This, however, is an important and evolving topic in California and across the United States, and one for which there remains room for more innovation and discussion.

## Least Significant Barriers

While looking at the most significant barriers can be informative, it is also useful to look at the least significant barriers. The two barriers with the lowest scores were:

1. Large number of water utilities within the energy utilities' service boundaries makes it difficult to coordinate activities (score of 2.49).

2. Service area boundaries do no match up (score of 2.33).

The weighted average for each of these barriers was less than 2.5, indicating a slight-to-moderate barrier. However, while these barriers had the lowest overall scores, several respondents ranked them as significant barriers. We note that these may be less of a barrier in California than in other regions because of the presence of wholesale water utilities that can represent the interests of its members, especially in Southern California where the Metropolitan Water District of Southern California delivers water to member serving 19 million people.

## Regional and Sectoral Differences in Barrier Rankings

One objective of the survey was to evaluate whether there were any differences in the ranking of barriers by sector or by region. Nearly two-thirds of survey respondents worked primarily in water, while 10% of survey respondents worked primarily in energy. The remainder worked in both water and energy (Figure 4). The ANOVA suggested that for all but two of the barriers, there was no statistically significant difference among the three groups. There were, however, significant differences on the following barriers: (1) poor quality or insufficient data to quantify water and energy savings and (2) water-related pricing policies. In both cases, respondents from the energy sector viewed these as larger barriers than did those that work in the water sector.

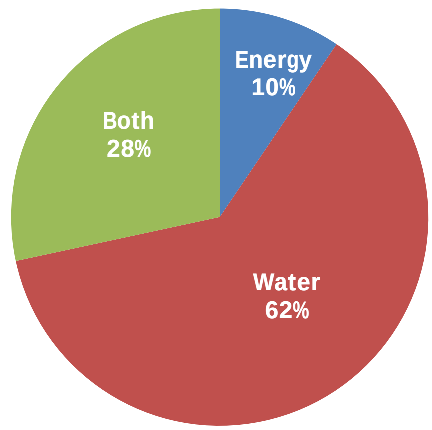


**Figure 4. Percent of Respondents Working in Water, Energy, or Both**

Respondents were divided nearly equally by region, with 55% from Southern California and 45% from Northern California (Figure 5). Using a statistical t-test to compare regional responses, we found that there was a statistically significant difference by region as to the significance of water-related pricing policies. In particular, respondents from Northern California felt that water-related pricing policies were a larger barrier than respondents from Southern California. This may be due, in part, to the fact that water prices in Northern California are considerably lower than those in Southern California. Additionally, respondents from Southern California thought that the lack of established relationships between the water and energy sector was a larger barrier than those in Northern California.

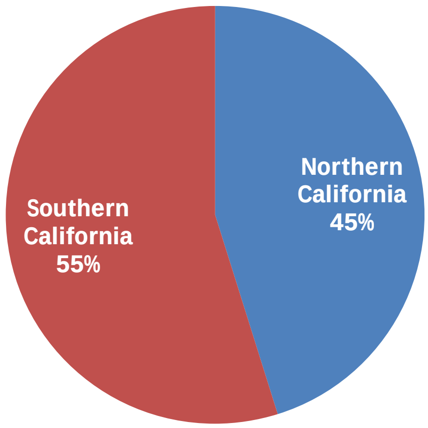


**Figure 5. Percent of Respondents by Region**

## Other Barriers

Respondents were also asked to identify any additional barriers not captured in the survey. We received nearly 30 responses, all of which are shown in Appendix B.[3] The majority of these responses were already included in the survey. For example, several responses focused on difficulties with allocating costs and benefits among project partners. Several responses, however, highlighted issues not included in the survey. Respondents noted that fragmentation both within and across sectors is a major barrier. Specifically, fragmentation, or the lack of integration, prevents utilities from communicating with one another about their program offerings and potential overlap. Additionally, it makes planning and coordinating activities difficult because, for example, project partners may be operating on differing reporting and funding cycles (this, in particular, can make developing multi-year projects difficult) or be using different standards and guidelines. Furthermore, it raises issues about how to allocate costs and benefits among project partners, although this barrier was addressed in the online survey.

Other barriers include:

- Lack of appetite for innovation and risk-taking within the water sector.
- Lack of directive by the CPUC and/or CEC to develop coordinated programs and accept the associated energy savings for meeting resource efficiency targets.
- Lack of awareness about water-energy connections within the utility, which makes it difficult to "embed" water-energy concerns into relevant activities.

Additionally, several respondents raised concerns about the ability to create a demand for these types of program, or for efficiency programs in general. These include split incentives between those paying the bill and those benefiting from the program; lack of innovative financing mechanisms to encourage efficiency measures (e.g., on-bill financing, Property Assessed Clean Energy [PACE] programs); and difficulty in engaging business and corporate decision makers in resource conservation initiatives. While these types of barriers were somewhat captured in the online survey,[4] barriers related to customer participation were not the primary focus of this survey. Additional work may be needed in this area.

[3] Note that the names of individuals and local/regional agencies were removed from these responses. We have, however, retained the names of state agencies.

[4] See, for example, "Customers are unaware or do not care that there is a connection between water and energy."

# 4 Case Studies: Overcoming Barriers

Although there are significant barriers to implementing coordinated water and energy efficiency programs, many utilities are finding ways to overcome these barriers. Below, we highlight four water and energy efficiency programs in California: a landscape efficiency program; a commercial kitchen audit program; a master inter-utility agreement to facilitate efficiency programs; and a clothes washer rebate program. The case studies, which were selected to demonstrate the diversity of programs being implemented, show that these barriers can be overcome. However, additional effort is needed to expand these efforts.

## PG&E and Bay Area Water Agencies: High-Efficiency Clothes Washer Rebate Program

High-efficiency clothes washers (HECW) save large amounts of both water and energy. A number of water agencies in the San Francisco Bay Area have been offering their customers rebates for HECW since the late 1990s. Each of these programs was individually managed by the local water agency. In 2001, however, several water utilities developed a regional rebate program, administered by a third party (the Electric & Gas Industries Association, or EGIA), with a single application form for customers and agreement on the terms and conditions of the program. At around the same time, PG&E administered a separate, parallel HECW rebate program with different rules and conditions. In 2006, PG&E and several Bay Area water utilities collaborated to develop a single, coordinated HECW rebate program for residential customers. Today, 27 Bay Area water utilities, the Bay Area Water Supply and Conservation Agency (BAWSCA), and PG&E participate in the joint program.

The utilities note that the program has been very successful and is extremely popular with their customers. Prior to the development of the joint program, a customer would have to fill out two rebate applications: one for the water utility and the other for PG&E. The customer would then receive two separate rebate checks. Today, the customer fills out a single application online or in the store. Once approved, the customer receives one rebate check, which ranges from $100 to $125. The rebates and all of the program materials identify the project sponsors as PG&E and "Your Local Water Agency." Between 2008 and the end of 2011, nearly 182,000 rebates for HECW were provided throughout the region.

The joint program has largely been administered by PG&E, although a third-party contractor recently took over program administration. Each year, the water utilities sign a contract with PG&E, approving that year's product specifications and the total rebate amount. Every week, PG&E sends a list of applicants to the utility partner.[5] The water utility staff then verifies that the applicant lives within their service and is eligible for the program. Once approved, the customer receives a rebate check generally within two-to-three weeks. PG&E pays for the initial rebate and then invoices the

[5] For BAWSCA members, the list goes to BAWSCA first, which then forwards the information to the appropriate agency.

project partners on a monthly basis. In addition to administering the program, PG&E is also responsible for advertising, marketing, and communicating with local appliance outlets. PG&E's management of the program has been beneficial for the water utilities, which are able to take advantage of PG&E's institutional and financial capacity, while the energy utility benefits by increasing the value of services offered to their customers.

In addition to expanding the reach of the program and making it easier for customer participation, the joint water and energy rebate program is more cost effective than the regional water rebate program. For example, before the joint effort was implemented, one utility had been paying approximately $18 per rebate for processing and administrative costs. Under the joint program, PG&E splits the administrative costs with its partners, charging the water utilities $10 per application. In addition, because the check is issued as a lump sum from both utilities, some of the water utilities were able to lower their individual rebates and still offer their customers a rebate of between $100 and $125.

Despite the program's success, interviewees suggest it may soon end. Some believe that the market for HECW is near saturation and thus a rebate is no longer necessary. Others, however, suggest that there may still be large numbers of inefficient appliances in use. A saturation study, which has not yet been conducted, would help resolve this issue. Project partners are exploring new coordinated programs across the region, although nothing has yet been developed.

## SDG&E and SDCWA: WaterSmart Landscape Efficiency Program

The San Diego County Water Authority (SDCWA) and San Diego Gas & Electric (SDG&E) have collaborated on water and energy efficiency programs for more than 20 years. Past programs include distributing showerheads, installing pre-rinse spray valves, performing energy efficiency audits at water agency facilities, and providing rebates for high-efficiency clothes washers. In 2006, the CPUC issued a decision (R. 06-04-010) requiring investor-owned utilities (IOUs) to examine embedded energy savings associated with water efficiency. As a result of this decision, energy utilities were directed to partner with one large water service provider to implement pilot programs that save both water and energy. At around the same time, the SDCWA Board, in its 2007 "Blueprint for Water Conservation," recommended that the utility coordinate with state agencies, SDG&E, and others to implement regional water efficiency programs, especially for landscape conservation. Together, these actions prompted SDG&E and SDCWA to develop three new pilot water efficiency programs: comprehensive water/energy audits, a landscape irrigation management program, and a recycled water program.

The landscape irrigation management program, referred to as the Managed Landscapes Pilot Program, applied both smart irrigation control technology and professional irrigation management services to save water at conventionally managed large commercial landscapes. Generally, climate-based smart controllers rely on evapotranspiration (ET) and other weather information to automatically adjust the amount of water used for irrigation. In contrast to stand-alone smart controllers, the technology used in this pilot program included communications devices that enabled offsite professional irrigation managers to remotely manage and control irrigation events.

Using a competitive bid solicitation process, SDG&E selected a single water management service company to market the program, assess savings potential, enroll customers, and install and monitor the systems at each site. The pilot program was implemented at 13 sites within the

SDCWA service area and was administered by SDG&E, with SDCWA providing program design and technical guidance. Although the contractor was required to achieve a minimum 20% water savings (Stephenson, pers. comm., 2013), the actual savings at the pilot sites averaged 35% (ECONorthwest 2010).

Despite its successes, however, the pilot program encountered several challenges. For example, both SDCWA and SDG&E were concerned if and to what degree a third-party contractor could override irrigation management decisions made by an existing maintenance contractor. Scalability was another concern: in order to expand the program, multiple providers would be needed to serve a region as large as San Diego. During the pilot, some property owners also expressed concern about the program and how the irrigation management techniques would be integrated into the service provided by their existing landscape manager.

Based on the successes and challenges of implementing the pilot program, SDG&E and SDCWA are developing a new program: the WaterSmart Landscape Efficiency Program (WSLEP). WSLEP will be an industry-wide training program that will enable contractors to implement water budgeting techniques and technologies to effectively reduce outdoor irrigation. To address concerns about scalability, WSLEP will be designed to accommodate participation by multiple contractors. It is hoped this approach will accelerate the recruitment process for new participating sites by leveraging existing accounts. As an example, WSLEP could use an organization such as the California Landscape Contractors Association (CLCA) as a program administrator to coordinate with participants and provide training on irrigation efficiency techniques and technologies. CLCA already maintains an online water savings data reporting system, which could be adapted to meet data reporting needs of WSLEP.

In order to participate in the new program, contractors will be responsible for several tasks. They must retrieve historical water use records to calculate the baseline water use, establish a water budget, identify and install hardware upgrades for more efficient irrigation, and track and report monthly water use (to determine actual water savings) for one year using an online reporting system. To increase awareness among landscape contractors about the upcoming WSLEP program, a training event was held to market the WSLEP to interested parties and provide contractors with strategies to effectively market their services.

Some potential issues remain. One lingering question is how energy savings will be calculated. Currently, there is no approved or agreed upon methodology for calculating and claiming energy savings resulting from water conservation and efficiency measures. As a result, SDG&E is still unable to get credit for the energy savings, limiting how much money they are able to spend on the program. This is a major barrier to developing and/or expanding these types of programs, as was identified in the online survey.

Another key issue is finding a reliable funding source, especially for the water utilities. SDG&E is using ratepayer money to fund the program, and these expenditures are approved by the CPUC. SDCWA is primarily funding the majority (91%) of the program through a Proposition 50 grant and the remainder (9%) from its operating budget. The potential for continued program funding is subject to program performance, future water utility budgets, and availability of grant funding.

## SoCalGas and West Basin: Cash for Kitchens Program

West Basin Municipal Water District is a public agency that wholesales drinking and recycled water to cities and private companies in southwest Los Angeles County. In 2009, West Basin implemented a new water conservation and efficiency program – the Cash for Kitchens (C4K) program. C4K is an audit program for commercial kitchens that seeks to increase water efficiency in the more than 600 commercial kitchens in West Basin's service area.

West Basin uses the South Bay Environmental Services Center (SBESC) to implement the program. SBESC is a public/private partnership that provides technical and program support for Los Angeles area municipalities implementing energy efficiency projects and connects regional customers with water and energy efficiency programs, rebates, and incentives. SBESC is responsible for scheduling and conducting the C4K audits and serves as the primary point of contact for potential or existing participants. SBESC identifies potential customers for the audits through several avenues, including door-to-door visits, outreach to local Chambers of Commerce, and cold calls. C4K auditors identify inefficient appliances; record information on installed water appliances, flow rates, and leaks; create customer reports; and summarize the recommended water and energy-saving techniques for kitchen staff and managers. West Basin provides SBESC with water-saving devices that can be distributed for free at the time of the audit, e.g., pre-rinse spray valves, flow restrictors, and waterbrooms. When devices are not free, the auditor will provide information about available rebates. To promote behavioral change, the auditor also conducts a training session for kitchen employees. Each year, 10-15% of participating businesses receive a follow-up visit from SBESC, during which installations are verified and program participants can receive a small display placard indicating they employ environmentally sound business practices if they implement the recommended efficiency measures.

The program was initially funded with seed money from Metropolitan Water District of Southern California and a match from West Basin. This grant paid for the water-saving devices as well as the development of marketing and outreach materials. Now that the materials are created, the program is relatively inexpensive to fund, as the only cost beyond the monthly fee to SBESC is for the water-saving devices. The program is currently funded by West Basin. West Basin pays SBESC on a monthly basis for a variety of tasks related to promoting water conservation and efficiency, including administering various aspects of West Basin's efficiency programs, organizing public outreach events, and running social media campaigns. In 2012, West Basin paid SBESC approximately $21,000 for the C4K program. The devices and SBESC's fee are currently paid for using funds from West Basin's public information and conservation budget.

With the help of SBESC, West Basin began partnering with SoCalGas on the C4K audits in 2011. At semi-regular meetings of the SBESC partners, West Basin periodically updated the group about their water efficiency activities. Following one of the updates about the C4K program, SoCalGas approached SBESC and West Basin about a potential partnership. At the time, SoCalGas operated a Commercial Service Technician (CST) Program, a natural gas audit program for commercial customers that was designed to ensure natural gas fixtures are operating properly and at maximum efficiency. SoCalGas and West Basin thought conducting both audits at the same time could provide mutual benefits for the agencies and the customers. SBESC also approached Southern California Edison for a possible electricity efficiency component of the C4K program; however, Edison felt they did not have the technical support available to participate, nor did they believe the electricity-saving potential was sufficient to justify their participation. This may change in the future with guidance from the CPUC encouraging partnerships between water and energy utilities.

As of March 2013, more than 230 C4K audits have been completed, and 70% of those have been combined gas and water audits (Spasaro et al. 2013).[6] The program seeks to audit around 75 facilities per year and has so far been achieving that goal. Program developers hope to eventually install devices, rather than simply distribute them; however, this would require additional insurance for the installers and would therefore increase the cost of the program. SBESC notes that the majority of program participants have installed the free water-saving devices, which include pre-rinse spray valves, flow restrictors, and waterbrooms. Where they have not been installed, the most common reason is that the device did not fit properly. While the program initially focused on commercial kitchens with at least 1,000 square feet of kitchen space, it has expanded to any facility with a commercial kitchen, including, for example, churches and assisted living facilities. The partners – particularly SoCalGas – hope to share their materials and implementation strategy with other water agencies interested in outreach to the food service sector.

The new partnership provides several important benefits. Through this new collaboration, the CST Program is able to reach a larger number of customers and has reduced the staff time needed to identify facilities and schedule audits. At the same time, these joint audits reduce the total number of visits – and therefore business disruptions – to the facility. Although there is no formal documentation for the partnership, the partners have agreed to a few conditions to facilitate the joint audits. For example, when SBESC makes the audit appointments, they provide CST Program auditors with at least a week's notice of the date. Representatives from the CST Program and SBESC meet at the facility and conduct their respective audits in parallel.

One challenging aspect of the program stems from limitations on SoCalGas's role. Their participation is currently free, and so the realized benefits come at no cost. Because the water-saving devices are only distributed rather than directly installed, however, SoCalGas is not allowed to claim the estimated energy savings from those devices. As a result, the benefit of their participation in the program is mostly limited to increased customer satisfaction, greater customer outreach, and reduced staff time. Although the idea for the CST Program is to take on responsibility for installing the devices, union rules and regulations have so far precluded that option. There has been discussion about hiring a third party to install the devices, although this has been cost prohibitive.

## SoCalGas and LADWP: Master Inter-Utility Agreement

The Los Angeles Department of Water and Power (LADWP) and Southern California Gas Company (SoCalGas) recently embarked on a joint implementation of energy and water efficiency programs and services in their overlapping service territories. SoCalGas is an investor-owned utility that provides natural gas to nearly 21 million consumers in more than 500 communities throughout Central and Southern California. LADWP provides electricity and water service to more than 4 million consumers in the Los Angeles area and is the largest municipal utility in the SoCalGas service area, providing service to 20% of SoCalGas's customers. Over the years, the two utilities have partnered on efficiency programs;

[6] For those that do not receive a combined visit, some are able to schedule a follow-up visit from a Commercial Services Technician within one week of the original C4K visit.

however, until now, these programs were opportunistic and limited in scale.

Several key events provided the initial incentive for a new, formal utility partnership between SoCalGas and LADWP. In 2005, new state legislation (SB 1037) required California publicly-owned utilities (POUs) to make energy efficiency programs a priority before acquiring other sources of electricity or building new transmission lines. In addition, Assembly Bill 2021 (2006) required POUs to determine the energy efficiency potential within their service area and establish annual savings targets in order to achieve a state-wide target of 10% reduction in energy use over 10 years.[7] In 2009, the CPUC directed California IOUs to develop partnerships with local governments and support their efforts to promote energy efficiency at the local level. In 2010, SoCalGas tried to partner with LADWP through other local organizations (including the LA Business Council and the SoCal Public Power Association) that were engaged in energy efficiency; however, those efforts were unsuccessful due to their complexity and expense, especially as LADWP did not have a guaranteed funding source.

In 2012, LADWP began implementation of a new, robust, and well-funded energy efficiency portfolio. The LADWP Board of Commissioners adopted an energy efficiency goal of 10% by 2020, along with a “stretch” target of 15%, and allocated $128 million and $139 million in FY 2012-2013 and 2013-2014, respectively, for energy efficiency programs. LADWP will update its energy efficiency potential study in mid-2013 in order to determine the feasibility of adopting the 15% stretch target as a firm goal. To achieve these new efficiency goals, LADWP proposed a formal partnership with SoCalGas. LADWP realized that a well-structured partnership could not only help ramp the new programs up more quickly, it could also increase customer participation and ultimately energy savings. Furthermore, a partnership could build the capacity of both organizations by enabling an exchange of information about best practices and technologies.

Both utilities recognized that implementing multiple inter-utility programs would require significant staff time and resources. In particular, entering into multiple single-program agreements between the two utilities, each of which could require approval of the LADWP Board of Commissioners, could delay the process significantly. As a result, the utilities streamlined some aspects of the joint programs by using an umbrella agreement, a process that goes well beyond the single-program agreements typically used between energy IOUs. Under this umbrella agreement, individual program partnerships get expedited legal review and can be approved by SoCalGas and LADWP executives responsible for the energy efficiency portfolio. Such an arrangement allows the partnership to evolve over time in order to meet the needs and priorities of both utilities. Individual program agreements, dubbed “Program Orders,” flow from the Master agreement and do not require separate Board approval.

The Director of Customer Programs and Assistance at SoCalGas, Gillian Wright, is an active proponent and supporter of working collaboratively with regional municipalities to maximize efficiency and customer satisfaction with energy efficiency programs. Ms. Wright recognized the need to encourage inter-organizational collaboration within her department, and she made it a priority for her staff to find ways to work together with other local and regional organizations, utilities or otherwise. Ms. Wright also moved swiftly to allocate resources to this effort, including creating a new team that would serve as a liaison between SoCalGas and LADWP, as well as other municipal utilities down the road. Having a centralized point of contact helps streamline the

[7] These targets are to be updated every four years.

coordination process and allows program staff to focus on their day-to-day responsibilities of delivering the best programs and services to the customers.

LADWP's new Director of Energy Efficiency, David Jacot, P.E., was well-versed in both energy efficiency and issues with California IOUs. Mr. Jacot had previously managed energy efficiency programs at Southern California Edison, and his familiarity with the structure of California IOUs, the CPUC, and IOU efficiency programs was instrumental in advancing the partnership. When Mr. Jacot arrived in June 2012, LADWP and SoCalGas were already talking about how to develop a framework for collaboration. Mr. Jacot kept the process moving using his contacts at SoCalGas and other local stakeholder groups, while his staff hammered out the details of the agreement.

In September 2012, LADWP and SoCalGas signed a Master Inter-Utility Agreement (MIUA), which outlines the general terms and conditions under which efficiency programs can be developed and implemented. The agreement does not specify the details of the joint programs, but instead deals with implementation issues. In particular, it establishes disclosure guidelines for customer information and sets terms and conditions for warranties, ownership of work/proprietary information, reporting energy and water savings, the measurement and verification of these savings, and various administrative requirements. The agreement also describes the kinds of activities that would be allowed, as well as the process for developing and implementing these programs. The purpose of the MIUA is to enable joint programs without having to reinvent the management and implementation process for each program.

In April 2013, LADWP and SoCalGas announced a $440 million investment plan for joint energy efficiency programs. To date, the utilities have implemented nine joint programs and plan to have 12 joint programs running by the end of 2013 (some of which are shown in Table 2). Although many of the new programs focus on energy, several programs also address water use efficiency. For example, LADWP now shares in the cost of an existing SoCalGas direct install program for water-saving devices in multi-family residences, such as low-flow showerheads, and can now take credit for the water savings from this program to achieve their water efficiency goals. As a water utility, it was relatively easy for LADWP to justify incorporating water into the new energy efficiency programs. In addition, as a power utility, LADWP is required to report greenhouse gas emissions to the state, and so LADWP could quickly measure the embedded energy savings from these new joint programs.

As outlined by the MIUA, each program has a lead utility responsible for coordinating with customers, processing applications, and handling the measurement and verification of savings. The partner utility shares in the cost and assists in program development and marketing. In most cases, the lead utility has already been implementing a version of the program, which is then modified to incorporate the interests of the partner utility. For example, one of the new joint programs is based on the California Advanced Homes Program, the IOU's longstanding energy efficiency program for new residential construction. With electric and water incentive funding from LADWP, this program is now being implemented in the City of Los Angeles and has been modified to include a new water efficiency component. The Savings By Design (SBD) Program, the commercial new construction program offered by all California IOUs, also launched in May 2013, marking the first time that electric incentives and services are being made available to new commercial construction projects within LADWP's territory in the well-received SBD format. LADWP is in the process of including natural gas measures, such as hot fluid pipe and tank insulation, in the commercial direct install programs that they are already implementing

### Table 2. LADWP and SoCalGas Joint Efficiency Programs

| Program Name | Program Description | Lead Agency |
|---|---|---|
| **Small Business Direct Install** | Free direct-install program that targets small- to medium-sized business for general lighting, water conservation measures, and natural gas conservation measures | LADWP |
| **LAUSD Direct Install** | LADWP engineering and Integrated Support Staff provide the Los Angeles Unified School District (LAUSD) with technical design, project management experience, and installation of lighting, water and natural gas measures | LADWP |
| **Retrocommissioning Express** | Offers cash incentives to non-residential customers who undertake a "tune-up" of their existing building system equipment to restore equipment to its original performance level, as designed, if not higher. Incentives are available for 13 measures, including lighting sensors, fan and pump variable frequency drives, and chilled water and condenser water | LADWP |
| **Energy Upgrade California** | Offers incentives to homeowners who complete selected energy-saving home improvements on single-family residences or 2-4 unit buildings, such as a townhouses, condominiums, etc. | SoCalGas |
| **California Advanced Homes** | Provides an incentive (financial, technical assistance, etc.) to primary decision-makers in residential new construction projects to exceed Title 24 efficiency standards for new construction, including single and multi-family high-rise buildings | SoCalGas |
| **Savings by Design** | Offers up-front design assistance, owner incentives, design team incentives, and energy design resources to encourages energy-efficient building design and construction practices for new non-residential construction | SoCalGas |
| **Multi-Family Direct Therm Savings (Energy Smart)** | Provides no-cost energy audits, products, and their installation for multi-family buildings. No-cost products include: showerheads, kitchen aerators, bathroom aerators, and pipe wrap for the hot water distribution system | SoCalGas |

with the Los Angeles Unified School District and the small business segment. By sharing the program leads, both utilities are able to gain efficiency and deliver more savings without having to invest heavily in the start-up costs.

Riding the wave of the success with LADWP, SoCalGas is forging similar partnerships with other municipal utilities in its territory. SoCalGas expects two new partnerships to be launched in 2013, and it is currently in the planning phase with several of these municipalities. Given that program administrators recognize the benefits of working together in delivering programs and services to their customers, making the decision to partner is usually an easy one. Creating the platform from which both sides can work together, however, is less so, but one that is far from impossible if proper commitments and resources are dedicated to it. LADWP recognizes the value of supporting SoCalGas's efforts to extend the partnership model to other municipal utilities, and to that end makes available both the MIUA and all executed program agreements for the other utilities to use as templates (see Appendix C).

# 5 Conclusions

The survey indicates that water and energy efficiency practitioners consider all of the barriers we identified from the literature and interviews to be at least slightly significant. Five barriers scored higher than 3.0, indicating that survey participants considered them to be moderate-to-significant barriers. The most significant barriers were associated with funding, water-related pricing policies, limited staff time, and the allocation of costs and benefits among the project partners. Additionally, potential water and energy partners do not have established relationships, making it difficult to coordinate existing or develop new programs. These results are consistent with some of the challenges identified in the case studies.

There was no statistically significant difference by sector or by region in the relative importance of most of the barriers. That is, survey respondents were in agreement on the ranking of barriers. Respondents in Northern California, however, felt that water-related pricing policies were a larger barrier than respondents in Southern California. This may be due, in part, to the fact that water prices in Southern California are considerably higher than those in Northern California, and higher prices provide a stronger incentive to purse efficiency programs. Respondents in Southern California felt that the lack of an established relationship was a larger barrier than those in Northern California. In addition, water-related pricing policies and poor quality or insufficient data were considered more significant barriers by respondents that work in the energy sector than those who work in the water sector.

Respondents were also asked to identify any barriers not already captured in the survey. Several respondents noted that fragmentation both within and across sectors is a major barrier. This fragmentation limits opportunities for utilities to communicate with one another about their program offerings and potential overlap. Additionally, it can make planning and coordinating activities difficult if, for example, project partners are operating on differing reporting and funding cycles or using different standards and guidelines. Other barriers identified by respondents included:

- lack of appetite for innovation and risk-taking within the water sector;
- lack of directive by the CPUC and/or CEC to develop coordinated programs and accept the associated energy savings for meeting resource efficiency targets; and
- lack of awareness about water-energy connections within the utility, which makes it difficult to “embed” water-energy concerns into relevant activities.

Additionally, several respondents raised concerns about the ability to create a demand for these types of program, or for efficiency programs in general. These include split incentives between those paying the bill and those benefiting from the program; lack of innovative financing mechanisms to encourage efficiency measures (e.g., on-bill financing, PACE programs); and difficulty in engaging business and corporate decision makers in resource conservation initiatives. While these types of barriers were somewhat captured in the online survey, barriers to customer participation were not the primary focus of this survey. Additional work may be needed in this area.

Additionally, the case studies demonstrate that barriers can be overcome. Water and energy utilities have been resourceful and innovative in bringing these programs to fruition. Those interviewed for the case studies noted that obtaining funding for these programs was challenging, but all were able to overcome this challenge by pulling funding from multiple sources, including from state grants, agency operating budgets, a public goods charge, and energy utility procurement funds. Some programs, such as the West Basin/SoCalGas commercial kitchen audit program and the PG&E/Bay Area water utility clothes washer rebate program were able to overcome the funding barrier by structuring the program such that there was no increase in costs or even a cost savings. Likewise, the LADWP/SoCalGas agreement focused on leveraging existing offerings in order to improve customer satisfaction and save money. Indeed, all of the joint programs were able to offer customers new or expanded services at costs in terms of both time and money that were lower than what would have been required to implement such programs individually.

The case studies demonstrate that there are many types of programs, ranging from those that save hot water indoors (clothes washers) to those that save cold water outdoors (efficient landscape) that can jointly achieve water and energy efficiency goals. These types of projects should be funded and promoted cooperatively. While it may require more work to coordinate these activities, they can also yield higher benefits and lower costs.

Several programs benefitted from establishing or utilizing a third-party to administer the program. All of the case studies noted that, while limited staff time was an issue, engaging outside partnerships helped ease the burden on their staff. West Basin, for example, contracted with SBESC to implement the kitchen audit program. Likewise, SDG&E and SDCWA will partner with organizations, such as the CLCA, to administer the training program. Finally, PG&E and the Bay Area water utilities are now working with a third-party to administer the rebate program.

Any new program is likely to encounter barriers of some kind, especially when it involves coordination with outside entities. All of the interviewees noted that a key factor in the success of the program was having dedicated staff members that actively sought ways to overcome these barriers. Indeed, nearly everyone we interviewed about these programs was passionate about developing these partnerships and keen to do more.

Numerous studies have demonstrated that saving water saves energy. Water and energy utilities in California, however, have implemented only a limited number of coordinated programs that are designed to capture these savings. This paper identified key barriers to coordinated water and energy efficiency programs, and discussed ways, through case studies, that California utilities have been able to move forward in spite of these barriers. This work can serve as a testament to the potential for more coordinated programs and can help utilities preempt potential barriers and understand what actions will be necessary for programs to succeed.

# Recommendations

We conclude with a set of recommendations for water and energy utilities to promote coordinated programs that address customer end-use efficiencies. These recommendations include the following:

- Utilities should consider designating at least one staff member as the lead for pursuing water-energy program opportunities.
- Water and energy utilities should start by discussing how existing programs and offerings might be coordinated.
- Water utilities should explore ways to leverage some of the new statewide energy efficiency programs that are designed to achieve deep, comprehensive energy savings in California.
- Utilities should seek ways to streamline offerings to customers through better coordination, especially for audits.
- Utilities should evaluate whether using a third-party to administer the program could reduce the burden on staff time.
- Water utilities should address long-term water savings and revenue stability as part of their best management practices.
- State agencies, including the CPUC and CEC, should develop guidelines for allocating water, energy, and cost savings among project partners.
- Utilities should consider adopting standard agreements to facilitate the coordination of existing programs and the development of new programs.
- Utilities, trade organizations, and non-governmental organizations should help improve communication and networking opportunities between water and energy utilities in the same region.

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# Appendix A: Barriers Survey

## Barriers to Establishing Joint Water and Energy Programs

Numerous studies have demonstrated that saving water saves energy. Water and energy utilities in California, however, have implemented only a few coordinated programs designed to capture these savings. The Pacific Institute has initiated a research project to identify key barriers to coordinated water and energy conservation and efficiency programs (by "coordinated," we mean that water and energy utilities work together to implement projects that save both water and energy, e.g., clothes washer rebates, leak detection, and audits).

Based on a literature review and informational interviews, we have identified a preliminary list of barriers. We are now conducting a broader survey that will help us identify the most significant barriers, and the results can inform discussions about how to overcome these barriers. We will summarize the survey responses and provide several case studies of coordinated programs in a report to be released this summer. Thank you for your participation!

**1. Do you work primarily in water, energy, or both?**

- Energy
- Water
- Both energy and water

**2. Do you work with urban systems, agricultural systems, or both?**

- Urban systems
- Agricultural systems
- Both urban and agricultural systems

**3. Which of the following most accurately describes the organization you work for?**

- Water utility
- Energy utility
- Water and energy utility
- Private consultancy
- Product manufacturer
- Academia
- Non-profit
- State agency
- Federal agency

Other (please specify)

## Barriers to Establishing Joint Water and Energy Programs

**4. Please enter your organization's 5-digit zip code (this will be used to evaluate responses by region; all results of this survey will otherwise remain anonymous).**

**5. Please indicate how important you believe the following 15 issues are to establishing joint water and energy conservation and efficiency utility programs.**

| | Not a barrier | Slight barrier | Moderate barrier | Significant barrier | N/A |
|---|---|---|---|---|---|
| 1. Poor quality or insufficient data to quantify water and energy savings | | | | | |
| 2. Significant temporal and spatial variability in determining water, energy, and cost savings | | | | | |
| 3. Insufficient guidance on how to quantify water, energy, and cost savings | | | | | |
| 4. Insufficient guidance about how to equitably allocate costs and benefits among project partners | | | | | |
| 5. Too much emphasis on getting perfect information before starting programs | | | | | |
| 6. Difficult to account for trade-offs that may occur (e.g., choosing between programs that save 10 kwh/1 gallon and 1 kwh/10 gallons) | | | | | |
| 7. Energy sector has limited or inconsistent funding available to invest in combined programs | | | | | |
| 8. Water sector has | | | | | |

## Barriers to Establishing Joint Water and Energy Programs

| | | | | | |
|---|---|---|---|---|---|
| limited or inconsistent funding available to invest in combined programs | | | | | |
| 9. Water-related pricing policies (e.g., few mechanisms for cost-recovery and concern about revenue stability) | ○ | ○ | ○ | ○ | ○ |
| 10. Service area boundaries do not match up | ○ | ○ | ○ | ○ | ○ |
| 11. Large number of water utilities within the energy utilities' service boundaries make it difficult to coordinate activities | ○ | ○ | ○ | ○ | ○ |
| 12. Lack of established relationship between potential water and energy partners | ○ | ○ | ○ | ○ | ○ |
| 13. Limited staff time | ○ | ○ | ○ | ○ | ○ |
| 14. Customers are unaware or do not care that there is a connection between water and energy | ○ | ○ | ○ | ○ | ○ |
| 15. Inability to share customer data/customer privacy concerns | ○ | ○ | ○ | ○ | ○ |

**6. Are there any barriers not listed above? Please describe below, and indicate the level of significance of this barrier.**

# Appendix B: Responses to Open-Ended Question

- Energy cost-effectiveness. Requirements that energy saving accrue to ratepayers who pay the cost.
- 80% of water utilities are not regulated and have no access to Public Purpose Program funds; therefore, there is no readily available fund for developing energy/water savings programs.
- A significant issue in Institutional accounts is that those trying to achieve and document savings have no money to spend to do it. They pay for water and power, but have little control over driving conservation programs. Those with money to spend have priorities that are more pressing, so that is where their investment goes. Those spending the money to save get no benefit from doing so - all of the benefit goes to the person who pays the water and energy bills (different department). This conflict stops many projects before they get started.
- Although the energy regulatory environment is better than before in terms of its willingness to create innovative regulatory practices to facilitate the spending of energy efficiency funding in the water and energy sector, the political will to push this forward is still an uphill battle. But we're getting there!
- Are there ways to address energy use and water that goes beyond the energy use and water savings?
- As a water and energy utility not regulated by the CPUC, most of the above are not major barriers. Our own organization split between the water and power systems is the biggest internal barrier, but we have been able to overcome this.
- Lack of solid data (from our agency's perspective) on the energy cost savings to us of saving x gallons/acre-feet. We have very good data on avoided costs to our utility from saving water, and can calculate customer's savings for reduced water use at their site, but have little to no information on cost savings to the end user. Significant barrier to program design/marketing.
- Different regulatory and reporting requirements for POUs and IOUs present some challenges; different reporting/planning cycles for POUs and IOUs make coordination for multi-year programs a little difficult.
- Difficult to involve or influence business/corporate decision makers in resource conservation initiatives. Local utility service areas don't align well with large scale national and multi-national business. - Significant barrier.
- Discrete and narrow mandates in the governance of every aspect of water management (e.g., water supply, aquatic habitat protection, pollution prevention, reduction of "embedded energy", flood control, etc.) results in agencies' "fragmented governance" and the loss of multi-benefit reforms with high economic and environmental values, and more efficient expenditure of public funds. This is the greatest barrier to resolving the unsustainable "water/energy nexus". And a truly "integrated water management" reform will not surface from legislative or regulatory reform until the general public is educated about mismanagement of our

water, and the true value of integrated, multi-benefit management reform. So public education is the major hurdle to creating public demand for reform of "fragmented governance."

- In my opinion the biggest barrier is the lack of an established relationship between potential water and energy partners. IOUs are too big to deal with all the water utilities on retail end user water/energy conservation programs.
- Institutional fragmentation (within and across water and energy). Lack of cohesion in standards, guidelines. Lack of blueprints etc.
- Lack of appetite for innovation and risk taking in the water sector is a moderate barrier.
- Lack of funding to acquire data and analyze it, and lack of financing to support water-energy conservation efforts (need more programs like PACE, on-bill financing, etc.).
- Lack of integrated planning requirements.
- Potential energy savings from proposed and existing water conservation programs are typically not included in cost-effective analysis. Water and energy conservation and efficiency are still voluntary, but should be required (mandatory) for any Federal or State funding.
- Professional language.
- CPUC and CEC regulations, rules and incentives to encourage water and wastewater demand side energy management and self-generation with biogas fuel cells, wind and solar facilities.
- CPUC Regulations
- The Commission needs to establish a mandate to coordinate programs and use common information.
- The cost of water is a small fraction of the cost to produce electricity, but electricity is a big part of the cost to produce water. The incentives for water providers are larger than electrical suppliers.
- The party bearing the cost of the program is not the party benefiting from it - thus creating disincentives to implementation.
- The primary barrier is a lack of promotion by the energy sector to the water sector on what programs are available.
- The two types of utilities are regulated very differently. And in some parts of the country, the water utility does not have incentive to conserve (in fact, conservation means a loss of revenue to them.)
- IOU regulated program restrictions make it very difficult to match up customer contact data, so in the end very few of our customers receive the program offer. This is a significant barrier to implementation of an existing joint program, and has made other water utilities think twice about participating due to lack of return on time investment.
- We have experienced barriers in receiving communication and invitations to discussions with energy utilities.
- While a lack of knowledge and coordination between the water and energy sectors are significant barriers, there is a need for changing the "culture" of these organizations so that water-energy awareness is embedded into all relevant activities for each.
- Some additional problems occur with using water district facilities for solar or wind generation and net metering.

Note: Some responses have been edited to ensure anonymity by removing any identifying features.

DUPLICATE ORIGINAL

# Appendix C:

## MASTER INTER-UTILITY AGREEMENT BETWEEN SOUTHERN CALIFORNIA GAS COMPANY AND LOS ANGELES DEPARTMENT OF WATER AND POWER FOR ENERGY EFFICIENCY, RESOURCE SAVINGS, AND RELATED ACTIVITES

**Purpose**

The purpose of this Master Inter-Utility Agreement (Agreement) between Southern California Gas Company (SCG) and the Los Angeles Department of Water & Power (LADWP) is to establish a working relationship between SCG and LADWP (each, a "Party" and collectively, "Parties") to jointly undertake various programs aimed at reducing natural gas, water and electricity usage by Joint Service Territory Customers (as defined below). This Agreement will serve as an "umbrella" agreement that sets forth, among other things, the general terms and conditions under which plans or programs for energy efficiency and resource savings developed and implemented by the Parties for Joint Service Territory Customers may be undertaken jointly by the Parties. With this Agreement, the Parties aim to achieve the following goals:

1. To establish a method to collectively address energy efficiency and resource savings programs for persons and companies residing or located in the area where the respective service territories of the Parties overlap and who take utility service from both Parties ("Joint Service Territory Customers").
2. To leverage costs otherwise borne separately by each Party separately and human resources of each Party to better serve the energy efficiency and resource savings needs of Joint Service Territory Customers.
3. To increase awareness and participation by Joint Service Territory Customers in the Parties' resource savings programs.
4. To develop a process that standardizes the sharing of information regarding SCG and LADWP's Joint Service Territory Customers participating in each Party's respective energy and resource savings programs.
5. To establish and implement incentive and/or financing mechanisms for Joint Service Territory Customers with the goal of promoting energy efficiency and resource savings.
6. To facilitate the implementation of multiple energy efficiency and resource savings programs.

In order to carry out the foregoing goals, SCG and LADWP agree to enter into this Agreement to potentially implement multiple joint programs as deemed in the best interests of the utilities' joint service territory customers. This Agreement provides a vehicle for the utilities to implement joint program elements with the consent of both Parties, subject to each utility's management approval, which may be provided or withheld at any time at each Party's sole discretion.

The Allowable Activities Section set forth in Schedule C of this Agreement describes the general tasks that may be implemented under one or more joint programs that may be entered into under this master Agreement. Individual program elements when entered into by the Parties will be described in detail in written Program Orders ("Program Orders") signed by both Parties. The general outline of a Program Order is included in Schedule C of this Agreement. Entering into Program Orders is an administrative function under this Agreement not requiring amendment to the Agreement. Each Party shall designate the individual management approver to implement Program Orders. For LADWP, the General Manager or his designee may approve Program Orders. For SCG, the approver shall be the Day-to-Day Contract for this Agreement.

**Authorized Representatives**

SCG hereby designates the individuals named below as SCG Representatives for all matters relating to the performance of this Agreement. The actions taken by the SCG Representatives shall be deemed acts of SCG. SCG may at any time upon written notice to LADWP change the designated SCG Representative(s).

SCG Joint Incentives Program Representatives:

(Signatory Authority)
Hal Snyder, Vice President, Customer Solutions
Southern California Gas Company
555 West 5th Street, GT20C1
Los Angeles, CA 90013-1046
Phone: (213) 244-5700
Email: HSnyder@semprautilities.com

(Day-to-Day Contact)
Gillian Wright, Director, Customer Programs and Assistance
Southern California Gas Company
555 West 5th Street, GT19A5
Los Angeles, CA 90013-1046
Phone: (213) 244-6843
Email: gwright@semprautilities.com

LADWP hereby designates the individuals named below as LADWP Representatives for all matters relating to the performance of this Agreement. The actions taken by LADWP Representatives shall be deemed acts of LADWP. LADWP may at any time upon written notice to SCG change the designated LADWP Representative(s).

LADWP Joint Incentives Program Representative:

(Signatory Representative)
Ronald O. Nichols, General Manager
Los Angeles Department of Water and Power
111 North Hope Street, Room 1500
Los Angeles, CA 90012
Phone: (213) 367-1320
Email: Ronald.nichols@ladwp.com

(Day-to-Day Contact)
David Jacot, Director of Energy Efficiency
Los Angeles Department of Water and Power
111 North Hope Street, Room 1057
Los Angeles, CA 90012
Phone: (213) 367-0936
Email: David.jacot@ladwp.com

**Complete Agreement**

This Agreement, including all Schedules attached hereto and which are incorporated by reference, constitutes the complete and entire Agreement between the Parties and supersedes any previous communications, representations or agreements, whether oral or written, with respect to the subject matter hereof. There are no additions to, or deletions from, or changes in, any of the provisions hereof, and no understandings, representations or agreements concerning any of the same, which are not expressed herein. **THE PARTIES HEREBY AGREE THAT NO TRADE USAGE, PRIOR COURSE OF DEALING OR COURSE OF PERFORMANCE UNDER THIS AGREEMENT SHALL BE A PART OF THIS AGREEMENT OR SHALL BE USED IN THE INTERPRETATION OR CONSTRUCTION OF THIS AGREEMENT**. The following Schedules are attached hereto and incorporated herein by this reference:

**Schedule A – Non Disclosure**
**Schedule B – Terms and Conditions**
**Schedule C – Allowable Activities and Program Orders**

**IN WITNESS WHEREOF**, this Agreement has been duly executed on behalf of the Parties hereto:

**SOUTHERN CALIFORNIA GAS COMPANY**

By: ______________________

Name: Hal D. Snyder

Its: V.P. Customer Solutions

Date: July 27, 2012

**DEPARTMENT OF WATER AND POWER OF THE CITY OF LOS ANGELES BY BOARD OF WATER AND POWER COMMISSIONERS OF THE CITY OF LOS ANGELES**

By: ______________________
Ronald O. Nichols
General Manager

Date: 9-4-12

And: ______________________
Barbara E. Moschos
Secretary

AUTHORIZED BY RES. 013 051
AUG 22 2012

APPROVED AS TO FORM AND LEGALITY
CARMEN A. TRUTANICH, CITY ATTORNEY

JUL 30 2012

BY ______________________
LONNIE ELDRIDGE
DEPUTY CITY ATTORNEY

**SCHEDULE A**
**NON DISCLOSURE**

## Confidential Information

The term "Confidential Information" as used in this Agreement shall mean the names, addresses, usage, specific billing, personally identifiable information and other similar customer information of either Party. When provided by one Party to the other Party, Confidential Information shall be clearly marked as confidential with the legend "Confidential Information", or the confidential status thereof shall be otherwise clearly indicated, if the data format of such Confidential Information does not reasonably permit marking with a legend.

1. Each Party ("Receiving Party") receiving Confidential Information from the other Party ("Disclosing Party") agrees that it shall use such Confidential Information, unless otherwise specified in writing in a relevant Program Order, solely for the purpose of coordinating such Receiving Party's enrollment in particular customer programs ("Programs"), and not in any way detrimental to the Disclosing Party. The Receiving Party shall use the higher or the same degree of care it uses with respect to its own Confidential Information or a reasonable standard of care to prevent unauthorized use or disclosure of the Confidential Information. In addition, the Receiving Party shall ensure that it complies with all relevant customer privacy laws, including without limitation and by way of example, Sections 394.4 and 8381 of the California Public Utilities Code at all times in the receipt and use of the Confidential Information. Except as otherwise provided herein, the Receiving Party shall keep confidential, and not disclose, and shall cause its Representatives to keep confidential and not disclose, Confidential Information to any third party, other than its directors, officers, employees, agents and advisors who have a direct need to access such Confidential Information for the purposes described above (collectively, "Representatives").

2. Consistent with Paragraph 1, the Receiving Party shall not disclose to any third party any information which identifies a customer as being enrolled in the Disclosing Party's Program. Without limiting the foregoing, and without limiting any other restriction outside of this Schedule A, the Receiving Party shall not be restricted under this Schedule A from disclosing to any third party information which identifies a customer of the Receiving Party as being enrolled in a Program solely of the Receiving Party, provided that the Receiving Party uses no Confidential Information received from the Disclosing Party in making such disclosure.

3. Notwithstanding the provisions of Paragraph 1 above, the Receiving Party and its Representatives may disclose any of the Confidential Information in the event, but only to the extent, that, based upon advice of counsel, it is required to do so by the disclosure requirements of any law, rule, or regulation or any order, decree, subpoena or ruling or other similar process of any court, governmental agency or governmental or regulatory authority. Prior to making or permitting any of its Representatives to make such disclosure, the Receiving Party shall provide the Disclosing Party with prompt written notice (unless imminent circumstances by law prevent prompt written notice in advance, and in such case notice will be provided as soon as practicable) of any such requirement so that the Disclosing Party (with the Receiving Party's assistance) may seek a protective order or other appropriate remedy. Notwithstanding the foregoing, SCG may disclose Confidential Information to regulatory agencies with jurisdiction over SCG and their staffs, including, but not limited to, the California Public Utilities Commission and the Federal Energy Regulatory Commission

(collectively, "Regulatory Agencies"), provided that a) the provision of such Confidential Information to the Regulatory Agencies is legally required; b) the provision of such Confidential Information to the Regulatory Agencies is done under a guarantee of confidentiality (whether by law or legally binding instrument), such that the Regulatory Agencies will continue to treat the Confidential Information as confidential; and c) SCG use commercially reasonable efforts to designate such Confidential Information as confidential in connection with any such disclosures. SCG will provide LADWP prompt written notice of any such disclosures of Confidential Information to Regulatory Agencies if SCG is not legally prohibited from doing so.

4. The Receiving Party shall not, and shall cause its Representatives not to, disclose to any person the fact that the Confidential Information has been made available to such Receiving Party or its Representatives; provided, however, that the Receiving Party and its Representatives may disclose the fact that the Confidential Information has been made available to such Receiving Party or its Representatives if such disclosure is required under any of the circumstances described in Paragraph 3 above, in which case the procedures specified therein with respect to such disclosure shall apply. The restrictions in this paragraph do not prevent the Parties from jointly agreeing upon public announcements that generally describe the activities under this Agreement, provided that no Confidential Information is disclosed in such announcement, and further provided that any such announcements comply with the procedure set forth in Section 12 of Schedule B. This Agreement itself and any Program Orders are not confidential and may be publicly disclosed by either Party. Both Parties recognize that the City of Los Angeles is subject to public disclosure laws, including without limitation the California Public Records Act and the Ralph M. Brown Act.

5. The Receiving Party shall disclose to the Disclosing Party when Confidential Information is intentionally or accidentally disclosed other than as expressly permitted, and/or misused, and shall provide immediate notification to the Disclosing Party upon discovery of such incident.

6. At any time upon the request of the Disclosing Party, the Receiving Party shall promptly deliver (and return, if applicable) to the Disclosing Party or destroy (with such destruction to be certified to the Disclosing Party) the following:
    a. all Confidential Information existing in written form or recorded in any other tangible medium (and all copies, abstracts and backups thereof, however stored) furnished to the Receiving Party or any of its Representatives,
    b. all portions of all documents, instruments, data, reports, plans, specifications, abstracts and media (and all copies, abstracts and backups thereof, however stored) furnished to or prepared by the Receiving Party or any of its Representatives that contain Confidential Information, and
    c. all other portions of all documents, instruments, data, reports, plans, specifications, abstracts and media (and all copies, abstracts and backups thereof, however stored) in the Receiving Party's or its Representatives' possession that contain or that are based on or derived from Confidential Information.

7. The Parties acknowledge that the Confidential Information is valuable, unique and that the proper handling thereof is critical to the mission and obligations of the Parties, and that damages would be an inadequate remedy for breach of this Agreement and the obligations of the Receiving Party and its Representatives are specifically enforceable. Accordingly, the

Parties agree that in the event of a breach or threatened breach of this Agreement by the Receiving Party, the Disclosing Party shall be entitled to seek an injunction preventing such breach, without the necessity of proving damages or posting any bond. Any such relief shall be in addition to, and not in lieu of, money damages or any other legal or equitable remedy available to the Disclosing Party.

8. If any provision of this Schedule A or the application thereof to any person, place, or circumstance, shall be held by a court of competent jurisdiction to be invalid, unenforceable, or void, the remainder of the agreement and such provisions as applied to the same or other persons, places, and circumstances shall remain in full force and effect.

9. Except as otherwise set forth in this Agreement, each Party acknowledges and agrees that neither the Disclosing Party nor any of the Disclosing Party's representatives or agents is making any representation or warranty, express or implied, as to the accuracy or completeness of the Confidential Information disclosed under this Agreement, and neither the Disclosing Party nor any of the Disclosing Party's representatives, agents, officers, directors, employees, stockholders, owners, affiliates or advisors will have any liability to the Receiving Party or any other person resulting from the use of the Confidential Information.

10. The parameters and scope of any potential exchange of any Confidential Information will be set forth in the relevant Program Order, and no exchange of Confidential Information will take place other than through the terms of a written Program Order. The Parties will endeavor to only exchange the minimum amount of Confidential Information necessary to accomplish the purposes of the particular Program Order under which Confidential Information is to be exchanged. Unless otherwise provided in writing in a Program Order, the Receiving Party will only retain Confidential Information until such time as the purposes under the relevant Program Order have been accomplished, and after such time the Receiving Party will dispose of such Confidential Information in accordance with the method set forth in Section 6 of this Schedule A.

## SCHEDULE B
## TERMS AND CONDITIONS

### 1. No Warranty

Except as otherwise expressly provided in this Agreement, neither Party makes any express or implied warranty to the other pertaining to the Program, or portions of products thereof, in regard to accuracy, correctness, defensibility, completeness, or any other standard or measure of quality or adequacy or as to its use or intended use for any particular purpose.

### 2. Proprietary Information

Intellectual property and proprietary information ("Input Data") will only be provided by one Party to another, if at all, through procedures specifically set forth in a relevant Program Order.

### 3. Ownership of Work

a. Any Proprietary Information provided by a Party to the other Party pursuant to this Section shall remain the exclusive property of the providing Party.

b. The Parties may through Program Orders develop certain program processes, data, reports, manuals, works of authorship, designs, improvements (of equipment, tools or processes), written, recorded photographic or visual materials, marketing collateral and other joint works ("Developments") which may contain Proprietary Information provided by one or both of the Parties. No Proprietary Information shall be provided by one Party to another unless specifically authorized in a Program Order, and all such Proprietary Information will be conspicuously labeled as "Proprietary Information" when provided. Unless otherwise specified in a relevant Program Order, no Proprietary Information which is confidential shall be provided from one Party to another. The following terms shall apply to the use of Proprietary Information and the Developments:

   i. Each Party providing Proprietary Information grants the other Party a perpetual, royalty-free, worldwide, fully paid-up license (a) to use such Proprietary Information as part of any Development created under the Program Order under which the Proprietary Information was provided; and (b) to use such Proprietary Information for the purposes of carrying out the relevant Program Order.

   ii. The Developments may be used by either Party for any purpose in carrying out the relevant Program Order, unless otherwise specified in the relevant Program Order. The Parties jointly own any portion of the Developments which is not Proprietary Information of one of the Parties.

   iii. The Parties hereby agree that the Developments may be disclosed to the California Public Utilities Commission (CPUC) upon request of the CPUC. However, should any confidential Proprietary Information be provided by one Party to another under the terms of a relevant Program Order, and should the receiving Party be required to disclose such confidential Proprietary Information to the CPUC, said disclosure shall be pursuant to California Public

Utilities Code Section 583 and CPUC General Order 66-C or other relevant law, rule or regulation. The disclosing Party shall receive timely notice of any such disclosure pursuant to this subsection (iii).

iv. For purposes of this Agreement, "Proprietary Information" means Party data and any other technical, commercial, financial, or customer information of a Party hereto, including, without limitation thereto, patent applications; trade secrets; proprietary information; techniques; sketches; drawings; maps; reports; specifications; designs; records; data; software; programs; code; computer models; manuals and related documentation; software source documents; algorithms; information related to the current, future, and proposed products and services of a Party and any of its affiliated companies; research; experimental work; inventions; development; engineering; know-how; financial information; procurement requirements; purchasing or manufacturing information; business forecasts; sales or merchandising information; and marketing plans; all as delivered through a valid Program Order from one Party to another Party. In each case, "Proprietary Information" also includes any such confidential information of any third party disclosing such confidential information to a Party or Consultant in the course of such third party's employment, engagement, business, or other relationship with such Party or its parent, subsidiary, or affiliated companies. Notwithstanding the foregoing, for purposes of this Agreement, Proprietary Information does not include Confidential Information as described in Schedule A of this Agreement.

**4. Notices**

All notices and correspondence under this Agreement shall be in writing and shall be effective upon actual receipt whether delivered by personal delivery, legible facsimile or reputable overnight courier or sent by United States registered or certified mail, return receipt requested, postage prepaid, addressed to the Parties as follows:

If to SCG Joint Incentives Program Contact:
Kevin Shore, Manager, Customer Programs
Southern California Gas Company
555 West 5th Street, GT19A8
Los Angeles, CA 90013-1046
Phone: 213-244-5351
Email: kshore@semprautilities.com

If to LADWP Joint Incentives Program Contact:
David Jacot, Director of Energy Efficiency
Los Angeles Department of Water and Power
111 North Hope Street – Room 1057
Los Angeles, CA 90012
Phone: (213) 367-0936
Email: David.jacot@ladwp.com

## 5. Term; Amendments

This Agreement shall be effective as of the date of full execution hereof by both Parties, and shall continue in effect until December 31, 2014, unless otherwise terminated in accordance with this Agreement. The Agreement may be amended by a written instrument signed by both Parties; however, neither Party is obligated in any way to consider or agree to any proposed amendment.

## 6. Termination of Agreement

Either Party may terminate this Agreement or any particular Program Order with or without cause, upon forty-five (45) calendar days' prior written notice to the other Party. Notwithstanding the foregoing, in the event of a termination, either of a Program Order or this Agreement, each Party shall be responsible for complying with the terms and conditions of the respective Program Order and Agreement until the date the termination becomes effective, unless otherwise specified in a particular Program Order. Termination by a Party shall not relieve the Parties of any financial obligations incurred prior to the date the termination becomes effective. At the option of the Parties, individual Program Orders may specify particular "wind down" provisions or procedures in case of termination by a Party while a Program Order is in progress. Upon the date termination becomes effective, both Parties should dispose of Confidential Information of the other Party in their possession according to Section 6 of Schedule A.

## 7. Reporting Requirements

7.1 LADWP shall have the right to claim Joint Service Territory Customer electric and water savings resulting from the Program Measures (as defined below) and to report such savings to various entities requesting such information including without limitation the California Energy Commission and California Urban Water Conservation Council.

7.2 SCG shall have the right to claim Joint Service Territory Customer natural gas savings resulting from the Program Measures and to report such savings to various entities requesting such information including without limitation to the Public Utilities Commission.

## 8. Installation Verification

Each Party understands and acknowledges that the other Party shall have the right to conduct its own inspections of the program measures (e.g. retrofits or other improvements or devices, as set forth in a relevant Program Order) (collectively, "Program Measures") for which the other Party is required to pay or reimburse under this Agreement. Any such Program Measure that fails to meet the requirements of this Agreement shall, at no cost to the other Party, be re-installed or otherwise corrected by the installing or responsible Party within a reasonable period of time after the other Party reports the failed inspection to the installing or responsible Party. Unless otherwise set forth in a relevant Program Order, should the installing or responsible Party fail for any reason to re-install or otherwise correct, within a reasonable period of time, a Program Measure that has failed inspection, then the other Party may, in its sole discretion, request reimbursement for said Program Measure. Said reimbursement shall be limited to the extent of (and up to but not exceeding) the amount received by the installing or responsible Party from the other Party under this Agreement for such Program Measure.

## 9. Funding

For the purposes of this Agreement, each Party may individually or jointly fund rebates or other customer payments ("Customer Incentives") through customer programs developed through signed Program Orders. Each Program Order under which Customer Incentives are to be made will include limits and not-to-exceed amounts specified in writing. All expenditures by LADWP through this Agreement shall be included within LADWP's approved budget for energy efficiency programs, and expenditures shall not exceed the specific budget for that program in place at the time of Program Order initiation. Except for reimbursements under Section 9 of this Schedule B, or as otherwise specified in a relevant Program Order, it is not generally contemplated that one Party will provide funds to the other Party under this Agreement, except as a method to provide Customer Incentives to customers.

## 10. Invoicing

Approval and Payment of Invoices: Approval and payment of invoices shall be done on a quarterly basis unless otherwise specified in a relevant Program Order. Program Orders will set forth more specific approval and payment processes for invoices.

Unless specifically indicated in a Program Order, in no event shall the cost associated with efficiency measures exclusive to natural gas be charged to LADWP and, conversely, the cost associated with efficiency measures exclusive to electric and/or water be charged to SCG.

## 11. Use of Name or Endorsements

No Party shall use the name, logo, trademark, tradename or service mark of the other Party on or with regard to any product or service directly or indirectly related to such other Party's Program or this Agreement, without the prior written approval of the other Party. By entering into this Agreement, no Party directly or indirectly endorses any product or service provided, or to be provided, by any Party, its successors or assignees. Any press or media release regarding this Agreement by one Party which includes the name, logo or otherwise references the other Party must be agreed to in advance by the other Party, which Agreement shall not be unreasonably withheld.

## 12. Entire Agreement

This Agreement constitutes the entire agreement among the Parties concerning the subject matter hereof and supersedes any prior understanding or written or oral agreement relative to said matter. Nothing in this Agreement is intended to limit the right or ability of the Parties in any way whatsoever to implement additional, similar or different incentive programs or promotional or marketing activities.

## 13. Survival

Notwithstanding completion or termination of the Agreement, the Parties shall continue to be bound by Sections 1, 2, 3, 4, and 12 of this Schedule A, as well as Schedule B to the extent either Party possesses the Confidential Information of the other Party.

## 14. Waiver

None of the provisions of the Agreement shall be considered waived by any party unless such waiver is specifically stated in writing. The waiver by one party of the performance of any covenant, condition or promise shall not invalidate the Agreement, nor shall it be considered a waiver by that party of any other covenant, condition or promise. The waiver by any party of the time for performing any act shall not constitute a waiver of the time for performing any other act or identical act required to be performed at a later time. The exercise of any remedy provided in the Agreement shall not be a waiver of any consistent remedy provided by law, and the provision in this Agreement for any remedy shall not exclude other consistent remedies unless they are expressly excluded.

## 15. Governing Law, Venue

This Agreement shall be interpreted, governed, and construed under the laws of the State of California as if executed and to be performed wholly within the State of California. Any action brought to enforce or interpret this Agreement shall be filed in Los Angeles County, California. In any action to enforce the terms of this Agreement, each Party shall be responsible for its own attorneys' fees and costs.

## 16. Headings

Titles and headings of the Sections and Subsections of this Agreement are for the convenience of reference only and do not form a part of this Agreement and shall in no way affect the interpretation thereof.

## 17. Severability

If any provision of this Agreement or the application thereof to any person or circumstance shall, at any time or to any extent, be invalid or unenforceable, the remainder of this Agreement shall not be affected thereby, and each such provision shall be valid and enforceable to the fullest extent permitted by law. However, if either Party in good faith determines that the finding of illegality or unenforceability adversely affects the material consideration for its performance under this Agreement such party may, by giving written notice to the other party, terminate this Agreement.

## 18. Assignment

Except as otherwise permitted herein, neither this Agreement nor any rights or obligations of any Party shall be assigned or otherwise transferred by any Party without the prior written consent of the other Party, which shall not be unreasonably withheld or delayed.

## 19. Independent Parties

The relationship of the Parties is that of independent parties and not as agents of each other or as joint venturers or partners. The Parties shall maintain sole and exclusive control over their respective personnel and operations.

## 20. Counterparts

This Agreement may be executed in any number of identical counterparts, each of which shall be deemed to be an original, and all of which together shall be deemed to be one and the same instrument when each Party has signed one such counterpart.

**21. Compliance with Laws**

The parties hereto, in undertaking their obligations hereunder, or any of them, shall comply with all laws and governmental rules and regulations, state, national, or local, or any of them applicable to their respective obligations under this Agreement.

**22. Acts and Documents**

The Parties hereto agree diligently to do such acts and to prepare and execute all documentation that may be reasonably necessary to perform and carry out this Agreement.

**23. Access to Records and Audits**

Upon no less than five business days prior to written notice, each Party shall provide the other Party, during normal business hours, with full and free access to all books, papers, documents and records that are used or are otherwise directly related to the first Party's performance under this agreement, including the right to audit, and to make excerpts from transactions and reports if required to comply with laws, regulations and administrative requirements. If either Party utilizes contractors to perform any of the work under this Agreement, the contracts with those contractors must state that they are subject to audit, as are any subcontractors they may use. Any expenditure that was unauthorized by this Agreement or a Program Order shall be refunded by one Party to the other Party within ninety (90) days from the date of such determination.

**SCHEDULE C**
**ALLOWABLE ACTIVITIES AND PROGRAM ORDERS**

**1. Program Order Purposes/Goals**

All Program Orders developed under the Master Inter-Utility Agreement must be consistent with the goals stated on Page 1 of the Agreement. Programs that meet these goals will be eligible for inclusion in this Agreement.

**2. Program Orders**

Specific work or activities of the Parties will only take place through written Program Orders under this Agreement, which shall not become effective and binding on either party until such Program Order is duly executed by both Parties. The Parties may separately or jointly prepare draft proposed Program Orders. The Parties agree and acknowledge that neither Party is under any obligation whatsoever to consider or sign any particular number or types of Program Orders, or any Program Order whatsoever, under this Agreement.

Each Program Order implemented through this Agreement shall be in the sample Program Order format set forth in the outline below. Not all items below will apply to all Program Orders.

Either Party may take the lead on a particular Program Order, depending on the infrastructure and staffing resources available.

- **Program Name and Description**
- **Roles and Responsibilities**
    - **Program Management**
        - **SCG**
        - **LADWP**
    - **SCG Tasks**
    - **LADWP Tasks**
- **Program Implementation and Schedule**
    - **Program Intake and Processing**
    - **Provision of Incentive/Rebate/Other Benefit to Customer**
    - **Sharing of Customer Information**
    - **Marketing and Outreach**
    - **Training**

  - **Inspection Procedures**
  - **Data Collection/Record Keeping**
  - **Program Evaluation, Measurement, and Verification**
- **Program Costs**
  - **Division of Costs**
  - **Invoicing – Approval and Payment**
  - **Receipt of Payments**
  - **Overall Payment Limits**
  - **Optional Provisions for Early Termination of Program Order**
- **Program Modifications**
- **Authorization**
  - **Management Approval**
  - **Date**

**3. Allowable Activities**

The allowable activities listed below provide guidance for the types of activities that may be set forth in any particular signed Program Order between the Parties.

a) **Program Development** – SCG and LADWP staff may work separately or jointly to develop Program Orders for joint implementation. Both Parties must approve the roles and responsibilities in the final Program Order.

b) **Program Staffing/Resources** – Each Party will identify its own project teams, to include program managers and implementing staff. Project teams may include contractors or consultants. Each Party will modify its own project team as deemed necessary by its management, taking care to provide continuity in project implementation.

c) **Marketing and Outreach** – Co-branding of program marketing materials may be permitted in a Program Order; each Party may require processing and approval of an internal co-branding request to allow the other Party access to its logo and must abide by the provisions of Schedule B, Section 12 of this Agreement. All marketing materials must be reviewed and approved by SCG and LADWP prior to production and/or distribution. Marketing materials may include written materials, web-based text and illustrations, power point presentations, video or film intended for cable, television, or internet distribution, and radio spots. Materials to be produced by SCG shall be developed in accordance with SCG's branding and design guidelines and materials to be produced by LADWP shall be developed in accordance with LADWP's branding and design guidelines. Upon co-branding approval by both Parties, and as provided in a Program Order, each Party may produce and/or reproduce and distribute materials on the other Party's relevant customer programs and joint SCG-LADWP programs to Joint Service Territory Customers. Reproduction of previously approved materials is permitted provided the marketing piece has not been modified in any way.

d) **Program/Application Intake and Processing** – Either Party may intake customer applications and program materials and administer a Program Order on behalf of both utilities. This "lead" Party may ensure compliance with Program Order guidelines and any other applicable regulation, and determine the amount and/or type of incentive or other customer benefit, according to the agreed upon program qualifications and requirements. The utility performing the intake and program compliance task will collect pertinent program data according to the provisions in Schedule A, Non-Disclosure and as further described in the Program Order. As required for a particular Program Order, each Party may provide verification of account status for its customers to the lead utility.

e) **Sharing of Customer Information –** To fully implement the Program Order, SCG and LADWP may share customer information per the provisions of Schedule A to this Agreement and as further described in the Program Order.

f) **Training** – SCG and LADWP may provide training to each other's inspectors and other staff to allow them to identify and/or verify compliance with the provisions of a Program Order or to assist in the successful implementation of the Program Order.

g) **Inspections** – Either Party may perform inspections as described and required in a Program Order to assist in the determination of program compliance; this inspection may be performed on behalf of both Parties. This provision is intended to streamline the amount of inspection activity needed at a customer site. If necessary, the inspecting utility staff may receive training by the other utility to ensure full understanding of compliance requirements.

h) **Program Costs** – The costs to implement a Program Order will be divided between the two Parties according to the roles and responsibilities agreed upon for that Program Order. In some cases costs may be reimbursed to the lead utility; in-kind services may be acceptable as reimbursement of costs.

   i. **Rebate/Incentive Payment Costs** – Where applicable to the Program Order, LADWP shall be responsible for rebate or incentive payment costs that represent the electricity or water savings associated with the customer's activity. SCG shall be responsible for rebate or incentive payment costs that represent the natural gas savings associated with the customer's activity. Energy savings costs may be apportioned differently if agreed to in the Program Order.

   ii. **Party-Specific Costs –** The Parties may share the cost of processing Joint Service Territory Customer applications, or this cost may be accepted by one of the two Parties. If costs are shared, actual, reasonable processing costs will be apportioned within the Program Order. In lieu of providing a portion of actual program costs, the Parties may assign in-kind tasks to support the program, as defined in the Program Order.

   iii. **Invoicing –** Either party may invoice the other Party for costs incurred toward the implementation of the Program Order, as agreed to in the Program Order.

i) **Program Evaluation –** The SCG and LADWP shall determine appropriate program evaluation methods as programs are developed and the data collection needs to support energy and/or water savings, as described in the Program Order. Either Party may propose inclusion of a Program Order in its own Evaluation, Measurement and Verification Program (EM&V). Relevant results of this EM&V process shall be provided to the other participating utility.

j) **Program Modifications –** Any Program Order may be modified as necessary through written agreement by the LADWP, Director of Energy Efficiency and the Director, Customer Programs and Assistance at SCG.