

2020

REWIRING WATER CONSERVATION FOR ENERGY: HOW SOUTHERN CALIFORNIA UTILITIES MAKE IT WORK



WHITE PAPER

**SOUTHERN CALIFORNIA
WATER COALITION**

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Executive Summary

The substantial amount of energy used to collect, treat, distribute and use water challenges us to find ways for water and energy utilities to work together to reduce resource consumption.

Reducing water use saves energy and reduces greenhouse gas emissions. It's also a critical way of adapting to the impacts of climate change on rainfall patterns. Yet, many barriers exist to streamlined collaboration between energy and water utilities to promote rebates and incentives aimed at boosting water use efficiency.

Researchers have attempted to quantify just how much energy can be saved through water conservation. A study published in 2018 by University of California, Davis researchers found that when Californians reduced statewide water use by nearly 25% in 2015 during the state's severe drought, it also saved 1830 GigaWatt-Hours of energy. That's enough to power more than 270,000 homes.

This policy paper by the Water-Energy Efficiency Task Force of the Southern California Water Coalition (SCWC) seeks to identify and address the barriers to joint resource efficiency programs. Through an examination of case studies from electric, natural gas, and water utilities, the authors document the challenges and innovative solutions they found in Southern California. They also conducted a gap analysis to pinpoint next steps for better integration of customer-facing efficiency incentives collaboratively across water, energy and natural gas.

From the case studies, four core barriers to greater collaboration emerge: Legal issues, service area misalignment, marketing coordination, and program management. This paper describes these barriers in detail but also notes that the case studies also illustrate that every barrier could be overcome through persistence and innovation. Lessons learned and recommendations for future programs are included.

Four Core Barriers

Legal Matters: Data protection and privacy issues pose serious challenges as water and energy utilities work to share customer lists and information; tax laws add a layer of complexity to providing rebates.

Finding Common Customers: With three main energy utilities and more than 400 water agencies serving Southern California, navigating overlapping service area boundaries is difficult. Other challenges include metering differences among electric, natural gas, and water utilities and how the use of single meters and master meters makes customer identification a challenge when it comes to eligibility and target marketing.

Getting the Word Out: Akin to the challenges of finding common customers are the challenges of informing them of incentives and motivating them to participate. The case studies provide insights into target marketing and the marketing design and communication review process.

Program Operations and Management: Program operations can quickly become complicated thanks to differences in the funding sources and program evaluation methodologies used by water and energy utilities on top of overall joint program administration issues. Adding to the complexity is the shortage of third-party contractors qualified to perform both water and energy audits and installation services.

New Problems, New Solutions

The case studies illuminate several innovative approaches to overcoming the barriers that can be replicated within other agency programs. Among these are:

- Master inter-utility agreements which have been implemented by several of the agencies and are credited with playing a significant role in streamlining the partnership programs.
- Using GIS-shape files to map overlapping service areas to aid in customer eligibility identification.
- Early development of a communication and design plan involving utility preferences and approval processes.
- Seamless “one-stop shop” program with simplified enrollment and participation process.

Moving Forward

Great potential exists to achieve water and energy savings through collaboration between utilities. In addition to understanding and applying the lessons learned from the case studies included in this white paper, the authors also gleaned insights into future action to overcome these barriers, as follows:

1. Further evaluate regulatory misalignment and support efforts to streamline collaborative inter-resource efficiency program development across state agencies to align state resource efficiency objectives.
2. Support efforts to streamline research of inter-resource efficiency programs and developing a standardized methodology to calculate the embedded energy in water.
3. Support efforts to protect PII data while creating streamlined pathways to enable the ease of sharing of data to support collaborative inter-resource research.
4. Develop streamlined legal contracting pathways to public-private resource efficiency programs.

Introduction

In California, three major investor-owned electric utilities provide service to approximately 90% of electricity end users. Natural gas utilities are similar in structure to electric utilities with three predominantly private companies providing gas service to approximately 90% of end users. Conversely, approximately 90% of water end users are serviced by 410 major urban water utility providers. This disparity in scale between energy (electric and natural gas) utilities and water utilities is compounded by the difference in structure between the predominantly private energy companies and the predominantly public water utilities. These disparities highlight the opportunities for water and energy utilities to work collaboratively. Many end users find themselves with an electricity provider, a gas provider, and a water provider, and the mix of providers may be entirely different for a friend a few miles away. The integration of energy, natural gas, and water efficiency programs offers the potential for scale and a more seamless experience for the end users of both the energy and water providers.

Water, electric, and natural gas utilities each have requirements set forth by their respective federal and California regulatory agencies to encourage customers to use water, electricity and natural gas efficiently. Each sector provides educational materials, site audits, rebates, and various incentives to replace inefficient devices with newer devices that use less resources. In fact, many devices are eligible for rebates from several sectors, complicating the process for consumers. For example, a customer purchasing a high-efficiency clothes washer may have to apply for multiple rebates from energy and water utilities to take advantage of all the available incentives. The fact is that many of these newer devices often save multiple resources.

The relationship between energy use and water use goes beyond home appliances that use both simultaneously, such as the clothes washer. Before the water flows to a home or business tap, it undergoes treatment and delivery processes that use electricity. Thus, some say that electricity use is embedded in delivery of clean and reliable water, although the intensity varies significantly throughout the state. The connection between the conservation of water and that of energy could be seen during the 2012-2016 drought. According to the UC Davis Center for Water and Energy Efficiency, California's efforts to save water during the drought in 2015 saved more energy than all the electricity demand management programs for the same year [UC Davis Center for Water and Energy Efficiency <https://energy.ucdavis.edu/california-water-saving-drive-saved-energy/>]. To provide a sense of scale on how much energy is associated with the cleaning, storage, and transportation of water, the single largest user of electricity in California is the California State Water Project, a water storage and delivery system of reservoirs, aqueducts, power plants and pumping plants that serves 27 million Californians with drinking water.

Water and energy utilities have a patchwork of requirements to increase their efficiency with ambitious goals to help support the growth of the fifth largest economy on the planet. Building

off the landmark SBx7-7 legislation as part of the 2009 Delta Reform Act, California Governor Jerry Brown took steps following an extensive, statewide drought to make some temporary conservation measures permanent through an Executive Order in 2016. The order called on the State Legislature to establish longer-term water conservation measures, such as permanent monthly water use reporting, new permanent water use standards and bans on clearly wasteful practices. The California Department of Water Resources (DWR), the State Water Resources Control Board (State Water Board), the California Public Utilities Commission (CPUC), the California Department of Food and Agriculture (CDFA), and the California Energy Commission (CEC) developed the 2017 Framework to implement the Governor's order. The California Senate and Assembly enacted two policy bills, Senate Bill (SB) 606 and Assembly Bill (AB) 1668 in 2018. These bills establish a foundation to enact the four primary goals of Executive Order B-37-16 and the 2017 Framework: using water more wisely, eliminating water waste, strengthening local drought resilience, and improving agricultural water use efficiency and drought planning [DWR Primer]. The overarching goal of the effort is to make conservation a California way of life.

Experts such as the Public Policy Institute of California have acknowledged that California leads the nation in energy efficiency (<https://www.ppic.org/blog/a-water-sector-energy-hog/>), so opportunities to further reduce energy use must be found in a demand-hardened environment. One such opportunity lies within the water sector, one of the state's largest users of energy. The Clean Energy and Pollution Reduction Act (SB 350) established targets for energy efficiency and renewable electricity, among other actions aimed at reducing greenhouse gas (GHG) emissions and reducing fossil fuel use by 2030. The California Public Utilities Commission has established requirements for energy demand management programs that are built into the three-year cycle rate cases for investor-owned utilities. Additionally, the California Energy Commission has established device efficiency standards across energy and water for appliances sold in the state of California and for new developments.

Governor Brown signed into law AB 398 which extended the California Air Resource Board's (CARB) cap-and-trade program beyond the initial target date of 2020 by another ten years. The newly developed Water-Energy Greenhouse Gas Metrics (WEG 2.0) were developed by The Climate Registry to address Southern California Edison's business customers' requests to accurately determine the Greenhouse Gases (GHGs) associated with the energy embedded in their water use. WEG 2.0 provides a transparent standard for water agencies to determine the emissions intensity of their processes and enables communication of those trends to stakeholders. It additionally provides the opportunity for water agencies to apply for grants that target reductions of GHG emissions and to potentially sell cap-and-trade credits in the marketplace.

The following table contains key pieces of legislation relevant to water and energy efficiency.

SECTOR	LEGISLATION	SUMMARY	EFFICIENCY METRIC	TIMELINE or TARGET DATE
Water	SB 606	Long-term efficiency standards	Water Budget for Urban Water Suppliers based on indoor, outdoor and water loss	Initial compliance takes effect in 2027
Water	AB 1668	Long-term efficiency standards		2020 - 2035
Energy	SB 350	The Clean Energy and Pollution Reduction Act establishes targets for energy efficiency and renewable electricity	Greenhouse Gas (GHG) reduction	2030
Energy	AB 398	Extends the Cap-and-Trade program to 2030. The Climate Registry developed WEG 2.0 to measure energy embedded in water		2030
Electricity, Water	CA Title 20	Sets standards for appliances sold in California starting January 1, 2020		
Electricity	CPUC Rulemakings 17-09-25, 07-09-043, 12-01-005 Public Utilities Code Section 454.5(b)(9)(c)	Establishes guidelines for energy efficiency programs for investor owned utilities including calculating savings, program review, and	Cost-effectiveness of savings	

		setting efficiency goals		
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The water legislation, and further proposed legislation, set efficiency goals in both water and energy in California. Much of the water delivered to end users within the state travels great distances requiring significant amounts of energy. Additionally, significant water is used in the production of electricity: Hydroelectric power depends on annual hydrology and the hydraulic fracturing or “fracking” method of extracting natural gas uses large quantities of water. The embedded electricity and natural gas in water and reciprocal embedded water in electricity and natural gas highlight the opportunities for joint programs that can help water providers reduce or manage demand, reduce pumping costs, and delay or remove the need to develop new sources of water to keep up with demand, all while saving energy. With increasingly ambitious goals for water and energy efficiency set by legislators and regulators, there will continue to be the need for partnerships between water and energy providers.

SCWC and Water Energy Efficiency Task Force Background

The Southern California Water Coalition (SCWC) spans Los Angeles, Orange, San Diego, San Bernardino, Riverside, Ventura, Kern, and Imperial counties, and comprises approximately 200 member organizations including leaders from business, regional and local government, agricultural groups, labor unions, environmental organizations, and water agencies, as well as the general public. Key technical support is provided by flood control district staff, city engineers, urban planners and redevelopment staff, water resource planners, real estate development professionals, hydrogeologists, and experts from consulting firms.

SCWC uniquely brings this broad coalition together to help make water conservation a way of life. The SCWC Water Energy Efficiency Task Force (Task Force) is focused on the energy-water nexus and opportunities for collaboration between the two sectors. Often viewed as separate issues, water and energy sustainability are interconnected and paramount to California’s future as impacts of drought and climate change persist. With water and energy challenges closely tied to one another—solutions should be as well. To help advance smart solutions, the Southern California Water Coalition Water Energy Efficiency Task Force provides a forum for all stakeholders to be an active voice in the conversation about resource sustainability.

Purpose of the White Paper

The goal of this 2020 white paper is to delve into the common barriers that exist for water and energy partnerships and explore solutions to increase the potential for collaboration. SCWC sent out a request for water utilities to submit case studies on their experience partnering with electric and natural gas utilities, and share insights and lessons learned from their innovative

efficiency programs. Additionally, case studies from municipal utilities serving across water, electricity and/or natural gas were included given their unique perspective on solutions and opportunities. The case studies received by SCWC are summarized in Appendix A. This paper highlights some of the barriers to greater proliferation of these partnerships, successful solutions, and areas for future work to help streamline these valuable partnerships. See below for a summary of the agencies participating in case studies, which represent a wide variety of entities that have developed collaborative efficiency programs between electric, natural gas and water utilities:

Partnering Utilities in the Case Studies

Water Retailers

Moulton Niguel Water District (MNWD)

Irvine Ranch Water District (IRWD)

San Diego County Water Authority (SDCWA)

Los Angeles Department of Water and Power (LADWP)

Burbank Water and Power (BWP)

Water Wholesalers

Metropolitan Water District of Southern California (MWDSC)

Investor-Owned Utility (IOU) Natural Gas only

Southern California Gas (SoCalGas)

Investor-Owned Utility (IOU) Multi

San Diego Gas & Electric (SDG&E)

Investor-Owned Utility (IOU) Electricity only

Southern California Edison

Appendix A includes a complete list of the efficiency partner programs identified in the case studies.

Barriers to Electric, Natural Gas, and Water Utilities Working Jointly on Efficiency Programs

Electric, natural gas, and water utilities share a common goal of assisting customers in the efficient use of their commodity and are expanding their efforts to partner on efficiency programs. Joint partnerships between two or more utilities provide benefits to customers, as well as to the individual agencies through economies of scale from the relatively fixed costs of administering the programs. Additionally, the resources are interlinked and so integrating the

programs provides broader educational benefits about how to more effectively manage resources. As water, natural gas, and electric utilities explore partnership opportunities, it is important to understand some of the common barriers that have been identified in the case studies. This paper consolidates the barriers identified in the case studies into four main thematic barriers to joint partnerships between water, electric and natural gas utilities. They are as follows: legal issues, service area misalignment/scale, marketing coordination, and program management.

Legal Issues

Case studies from IRWD, MNWD, MWDSC, IRWD, BWP, and LADWP all identified legal barriers that had to be overcome at the initial start of their collaborative programs. Agencies eventually worked through the differences, but better alignment from the outset could have improved the programs. Lessons from implementation of the programs can offer insights to speed up the timeline to implement effective collaborative resource efficiency programs.

Contracting Process

Water utilities and energy utilities require legal contractual agreements when embarking on shared efficiency programs. Many of the case studies showed a misalignment of public-owned utilities (POUs) and investor-owned utilities (IOUs) in terms of compliance with different regulations and legislation. The LADWP – SoCalGas case study clearly outlines the differences. LADWP, a POU, receives policy directives on energy efficiency targets from the Los Angeles City Council, the LADWP Board of Commissioners, and the mayor, and as a POU, they must comply with state legislation and regulations, as well as the California Energy Commission (CEC). SoCalGas is an IOU, with a Board of Directors providing direction. In addition, SoCalGas is subject to compliance with the California Public Utilities Commission's (CPUC) regulations and procedures. The CEC and CPUC both seek to improve efficiency; however, they could implement different programs with different requirements and constraints that make it challenging for the POU and IOU to partner on local initiatives. To expedite the development of separate legal agreements for each proposed joint partnership, LADWP and SoCalGas sought a solution to streamline the contracting process. Contracts could take many different forms including collaborative agreements, Memorandums of Understanding (MOUs), and Master Inter-Utility Agreements (MIUAs). An MIUA works as a joint-partnership umbrella agreement under which separate programs can be developed and implemented. Standard legal contract elements cover release of liability, privacy, severability, indemnification, records retention, customer confidentiality, and terms and conditions as identified by MWDSC and LADWP case studies.

Water and energy efficiency programs typically have customer participation forms that require customer signatures from participants receiving in-kind benefits from the program. These customer participation forms often include release of liability and disclaimer language. The case study from IRWD identified the legal review process for customer participation forms, disclaimer language, release of liability, and non-disclosure agreements for customer data sharing as a key barrier to joint efficiency programs. Developing and finalizing contractual agreements between utilities can take months or even years before the collaboration can take effect. For example, the MWDSC and SCG memorandum of understanding took several years to get final approval. Since then, the MIUA has proven to work extremely well for them in implementing new efficiency program partnerships.

Personally Identifiable Information Data Transfer

Case studies reveal that negotiating differences to develop a consolidated non-disclosure agreement to facilitate transfer of customer data between entities required extensive bi-lateral legal review which typically took many months at a minimum to reconcile differences. Some agencies restrict any personally identifiable information to be transferred altogether. MNWD encountered a similar barrier when partnering with SDG&E in that both entities were advised by legal counsel of limitations in personally identifiable information data transfer. This type of data helps evaluate program effectiveness and support customer service questions from participants. Many of the restrictions are in place to bar private entities from profiting off the collection of public data.

Public Disclosure Requirements

Most of the case studies identified public disclosure requirements as a legal barrier. Customer records and program data transferred across partnering entities could become subject to the California Public Records Act (Government Code Section 6250 et seq.) when a public water district contracts with a private energy utility. Information on rebate data participation has been ruled public and subject to public records act requests in a landmark case of Los Angeles Department of Water and Power v. Metropolitan Water District of Southern California 2016.

Navigating Tax Law

Tax Exemptions – Under current federal law, energy efficiency rebates exceeding \$600 are not considered taxable income, but water conservation rebates exceeding \$600 have not received the same federal tax-exempt status and are

therefore considered taxable income. Under current state law, both water and energy efficiency rebates are not considered taxable income, but that could change as tax exemption rules are periodically reviewed. Although most individual residential indoor rebates do not exceed the \$600 limit, it could present a challenge to future water and energy efficiency partnerships that include the installation of more expensive devices and appliances. Also, the \$600 threshold could be reached if the customer participates in more than one water efficiency rebate, as the total accumulated rebate amount is considered for each calendar year.

Tax Form Issuance – Water efficiency rebates that exceed \$600 are considered taxable income and require the collection of a W-9 tax form from the participating customer. The water utility must issue a 1099 tax form to the customer at the end of the year for the filing of their tax return. Legal counsel will determine the utility’s legal obligation based on factors such as whether a direct financial benefit was provided and if it is considered an “instant discount” or a rebate. If tax forms are required, the partnering utilities will determine which one will handle this aspect of the program management. The administration costs of collecting W-9 forms and issuance of 1099s are significant as shown by the MNWD case study.

Service Area Misalignment and Scale

A significant hurdle to joint utility partnerships between water and energy providers stems from the fact that there are over 400 water utilities in California and only a handful of natural gas and electric providers in the state. The energy utilities do not have the time or staffing capability to work individually with every water utility. There are too many of them and it would take too much time to develop and manage separate programs. Also, it would not be cost-effective due to the high administration costs.

Overlapping Service Areas and Customer Eligibility

All six case studies reference the challenges identifying eligible customers due to overlapping service areas. As water and energy utilities collaborate on joint efficiency programs, identifying mutual customers becomes a top priority to determine customer eligibility. There is often a significant disparity in sizes of the partnering utilities, with energy providers typically serving a much larger area than the water utilities.

The Burbank Water and Power (BWP) case study describes the challenge encountered when attempting to gather customers’ SoCalGas information in order to qualify them for the program. Privacy laws prevented SoCalGas from sharing customer account information with BWP. This places the burden of confirming the customers’ SoCalGas account information during the first

appointment, which is not always successful. Many customers do not have immediate access to their information through bills or a SoCalGas online profile. Without their SoCalGas account data, the customer cannot participate in the program, wasting the time of both the customer and BWP by not achieving any water or energy savings. Several other case studies mention a process which involves the energy utility requesting the list of zip codes for the water utility's service area, however, most water district service boundaries do not correspond directly with zip code boundaries. When determining service area boundaries, the utilities often encounter legal issues requiring non-disclosure agreements as discussed in the section on legal barriers.

Metering Differences

Energy utilities and water utilities assign customer classifications and group meters across different codes. Commercial, industrial, and institutional (CII) customers and multi-family residential (MFR) customers may be grouped and defined differently across electricity and water providers. The common meter installation for MFR customers is one water master meter (shared) to register the water supplied to the entire multi-unit building, but separate gas and electric meters for each individual unit. The residents/tenants of the MFR building may have their water charges included in the rent but will pay separate gas and electric bills directly to the utility providers. With this arrangement, the water utility considers the building owner or property management company to be the customer, not the individual resident or tenant. The IRWD case study cited examples of some MFR customers having master meters for both water and natural gas service, but individual electric meters for each unit. Identifying and communicating with the tenants of a multi-family building with a master meter presents a challenge to water and natural gas utilities.

CII customers encounter similar metering arrangements and therefore lack information about their exact operational energy and water consumption. Not all CII customers have separate water or electric meters installed in their facilities to record specific water or energy demands associated with high use equipment. Master metering distances the customer from their actual usage and from the utility provider. The utility has no direct relationship with the end users who have master meters. With shared master meters, the utility relies on property managers and building owners to communicate with tenants about efficiency programs and potential water and energy savings.

Marketing Coordination

As agencies work together to develop collaborative efficiency programs, the branding, communication, and eligibility all become core issues to ensure consistent messaging to boost awareness among potential applicants. With the complex overlap of scale and scope, it quickly becomes challenging to individualize programs to specific geographies and change standardized materials to align with localized preferences. This section covers the barriers relating to the areas of marketing and customer participation.

Target Marketing to Eligible Customers

Joint efficiency programs are usually only available to a specific segment of each utility's customer base. This is because water utilities add supplemental funding to existing energy programs such as the Energy Savings Assistance Program or the Business Energy Solutions Program which have strict eligibility criteria for customer participation. For example, the ESA programs through SDG&E, SoCal Edison, and SoCal Gas are specifically for income-qualifying residential customers. Further slicing of the sector occurs when utilities screen out customers who have already received a prior rebate. Marketing to this limited segment requires a very targeted outreach approach. As mentioned in previous sections, data sharing is an important component of partnerships when identifying eligible customers. IRWD reports that strategic marketing is more difficult when trying to pre-screen customers for prior participation among multiple utilities but enables greater program effectiveness.

Design and Communication Review

Differences in branding and design styles can present a barrier to the development of marketing materials. An integral part of developing a new shared efficiency program is the creation of promotional materials, with one utility usually taking the lead. The graphic design process involves iterative review and negotiation, often involving several departments within each utility. Coordinating the utilities' differing design styles, fonts, color palettes, desired language, and word preferences can slow down the creative process. This is a common obstacle requiring clear communication at the beginning of the design process to keep the program organized and on track. Logos are the brand marks for each of the partners, representing the ethos and values that define them. Each entity often has standard protocols that must be followed to safeguard the integrity and brand reputation, particularly when it comes to logo use, sizing of the logos, and placement on marketing collateral. It is expected that logos of the partnering utilities will be included on outreach and marketing materials. However, large utilities may feel they already have existing outreach material that can be used for a new joint efficiency program and not want to expend the

time to redesign the material and add the new partner logo for a program that is only available to a small segment of their service area. Also, questions regarding value and costs come into play for the larger utility who may not want to spend additional dollars for a relatively small print run. The case studies from IRWD and MNWD address some of these issues.

Customer Awareness and Participation

A challenge or barrier to any efficiency program is lack of customer awareness. Surveys show a low level of awareness for water efficiency programs, especially for outdoor programs (UC Riverside Study for MNWD). One goal of a collaborative resource efficiency program is to increase customer knowledge of available efficiency programs and the amount of money and resource savings they could achieve with their participation in the program. Customers also want programs to be easy to use. BWP highlighted their marketing efforts using direct mail and word of mouth, positive referrals from satisfied customers. Creating a seamless customer experience was paramount to their success.

The SDCWA and SDG&E ESA partnership employed utility outreach, but also tapped into the networks of community-based organizations to help identify eligible households and spread the word about the program. They also have non-resource programs that include marketing, education, and outreach to educate shared customers about benefits of saving both water and energy.

Program Management

Funding

Whether one agency partner contributes funds to another agency's existing efficiency program, or the partners set up a different funding arrangement, cost allocations and invoicing of rebate incentives require developing an alignment in approach to facilitate a successful program. Water agencies who are members of MWDSC like LADWP and SDCWA have access to MWDSC's member agency administered funds to offset the cost of water efficient devices, however, smaller agencies who are not member agencies of MWDSC cannot contract directly with them without approval from their wholesale agency. For example, this would require MNWD to sign an extra layer of contracts with their wholesaler to access MWDSC's supplemental funding for high efficiency devices.

Evaluation Methodology

Water use and energy use have an interdependent relationship, each one affecting the other. Due to the complex nature of calculating water and energy savings obtained from efficiency programs, utilities are often unable to provide

accurate estimates of energy savings from water demand management programs which makes determination of cost sharing and incentive design difficult. The LADWP, MNWD, and MWDSC case studies address the difficulties with savings evaluations.

Energy use for water is a function of many variables, including water source (surface water pumping typically requires less energy than groundwater pumping), treatment (high ambient quality raw water requires less treatment than brackish or sea water), intended end-use, distribution (water pumped long distances require more energy), amount of water loss in the system through leakage and evaporation, and the level of wastewater treatment (stringency of water quality regulations to meet discharge standards.) Likewise, the intensity of energy use of water varies depending on characteristics such as topography (affecting groundwater recharge), climate, seasonal temperature, and rainfall. Source: Copeland, Claudia and Nicole Carter, Energy-Water Nexus: The Water Sector's Energy Use, pg.3 Congressional Research Service, January 24, 2017 (AWE website)

Currently the CPUC does not broadly recognize energy savings from cold water efficiencies in any significant way. The IOU's do not receive credit for energy saved from cold water savings and hence there is no incentive for the energy sector to promote these measures. Until the CPUC offers SCE, SCG, and other energy utilities credit for saving cold water, there is not a driver for them to invest money and effort promoting these types of cold-water saving initiatives. Additionally, water utilities do not have a standard methodology to measure water savings from water efficiency programs.

Contracts with Third-Party Audit and Installation Contractors

Coordinated water and energy efficiency programs require experienced contractors in both sectors to meet the qualifications necessary to perform integrated audits and installations for utility customers. Contractor shared services bring economies of scale to the program, thus reducing the cost for each entity. Utilities often encounter a shortage of qualified contractors when putting a contract out for bid who have the technical skills to install both water and energy fixtures, indoors and outdoors. Plumbers are specialized on the water side, but lack the ability to install electric, gas, or landscaping devices. The same limitations exist among energy installers who lack expertise with water or landscape devices. This shortage of qualified contractors is discussed in the IRWD case study. Also, with direct install programs, it is common for the third-party contractor to assume responsibility for all customer interfacing. The contractor will respond to program inquiries on behalf of utilities, making them

the “face” of the program. Contractor selection is a critical component in a successful efficiency program. Careful screening, referrals, and background checks take time to conduct and can delay the program kick-off. Given the relative niche that joint programs face today, the limited market for qualified vendors and limited experience of vendors in handling the wide variety of customer questions across each sector creates a key barrier.

Program Administration

Another barrier to joint partnerships revolves around working within the PUC framework. As IRWD pointed out, most water agencies are on a one- or two-year budget cycle, in contrast to the three-year PUC cycle. This makes it challenging for PUC utilities to adapt to water partnership opportunities. Also, there are the differences in department and program management groups to consider. Water agencies typically have one department that manages their efficiency programs. SoCalGas has different program managers for each program, and SoCalEdison has multiple program groups that may be responsible for one or all activities related to customer efficiency programs. One of the partnering utilities will assume a greater share of the responsibility and staffing for the day-to-day operations of the program. Staff time can become a challenge for the lead agency.

Solutions to Partnership Barriers

While many challenges were presented to the development of these programs, the case studies offered lessons learned and innovative ways to overcome the barriers.

Legal Issues

Contracting Process

Both LADWP and MWDSC utilize Master Inter-Utility Agreements to streamline their partnership programs. This approach has proven to be one of the foundational pillars on which these two leading agencies build their efficiency collaborations. The LADWP and SoCalGas case study states, “Under the MIA structure, the master umbrella agreement covers the typical utility lawyerly issues of indemnification, severability, customer confidentiality, terms and conditions, rendering these issues resolved for the duration of the partnership. This allows individual Program Orders to be developed and approved for each individual joint program as a simple Scope of Work, which includes identification of key staff, roles and responsibilities of each utility, cost structure, invoicing and other requirements applicable to any normal contractor relationship.” This unique tiered structure eliminates the need for separate legal agreements for each joint program, and gives the partners flexibility to respond quickly, changing or adding new programs to the joint portfolio as they arise.

SDG&E has a Privacy Green Light (PGL) process to fast-track standard data requests. IRWD and MNWD's case studies identify the PGL process as playing a significant role in acceleration of the program implementation.

Personally Identifiable Information Data Transfer

LADWP's case study stresses their joint programs incorporate the eligibility and verification requirements of both utilities up front. IRWD utilizes Non-Disclosure Agreements (NDAs) to facilitate mutual confidentiality for customer data sharing between utilities. The ability to share personally identifiable customer information between agencies may be an area for future legislation as it relates to research and programs for the public good and tighten up potential legal challenge under the public records act.

Public Disclosure Requirements

Confidentiality clauses and non-disclosure agreements can be solutions to address public disclosure requirements. MNWD's solution was to include a confidentiality clause in its partnership agreement with SDG&E where SDG&E acknowledged that MNWD is subject to the California Public Records Act (PRA), but also requires MNWD to inform SDG&E of any requests pertaining to program data so that they may seek a protective court order for those records. SDG&E also agreed to hold MNWD harmless in the event records were released due to a PRA request.

Navigating Tax Law

Regarding the different treatment of tax exemptions available for energy efficiency rebates versus water efficiency rebates, one possible solution is for the joint water-energy partner program to be administered by the energy IOU. This may satisfy the IRS and eliminate the need for the collection of W-9s from participating customers, and the issuance of 1099s by the water utility. However, SoCalGas now requires W-9s from all commercial, industrial, institutional, and agricultural customers receiving energy efficient incentives. Removal of the IRS tax tracking requirements would be extremely beneficial to all concerned parties.

Service Area Misalignment and Scale

Overlapping Service Areas/Customer Eligibility

Overlapping service areas between partnering water and energy utilities can be a barrier to identifying joint territory customers which creates a delay in program rollout. However, sharing of GIS databases and shape files has provided the solution for the MNWD and SDG&E partnership. For the MWDSC/SoCalGas high efficiency clothes washer rebate program, Metropolitan allows SoCalGas to submit rebates quarterly in bulk format, then MWDSC's vendor uses a geocoding

routine to sort the data to determine eligible installations within their service area. More detail is included in their case study. SDCWA and SDG&E mapped their overlapping service areas below.

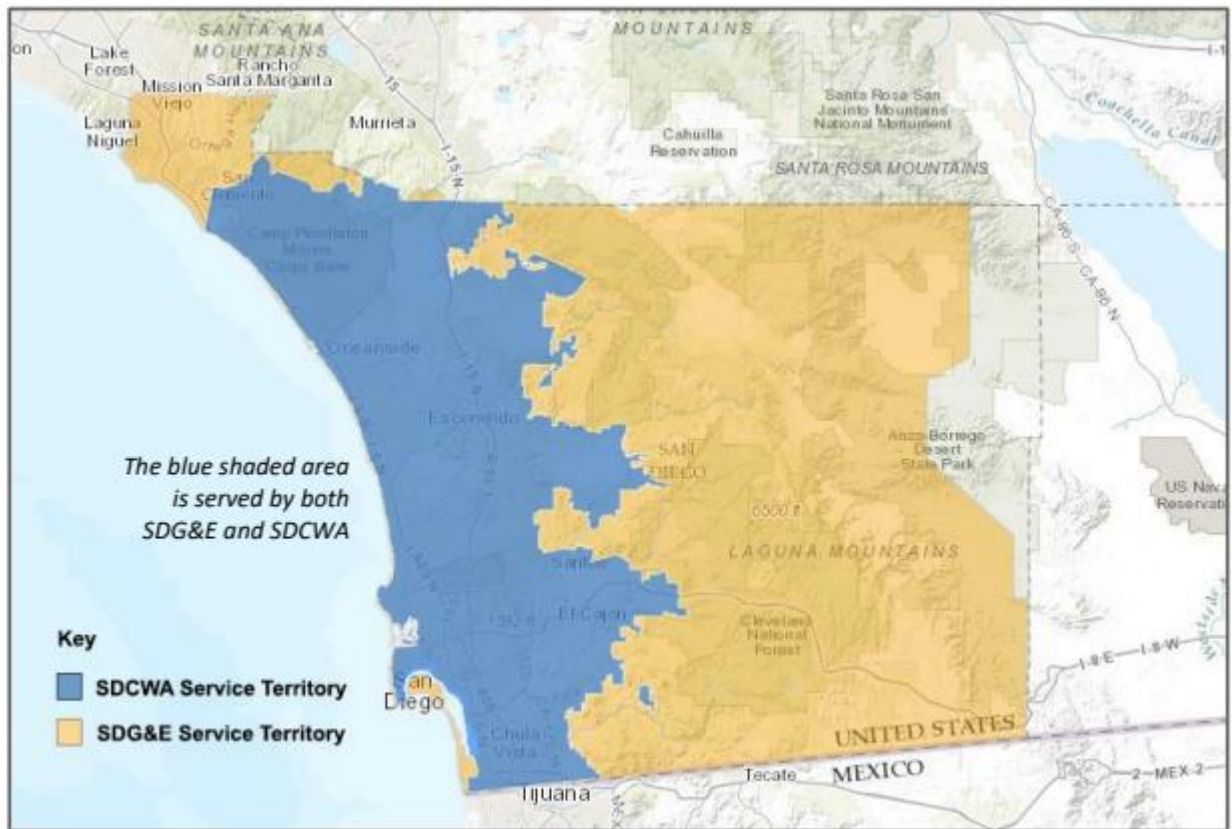


Figure 1. Area within SDG&E's Service Area Served by SDCWA

Energy utilities have numerous water providers in their service area, but a possible solution involves collaboration between water utilities to develop a working agreement, possibly through a wholesaler, to streamline the process and reduce the number of separate programs that need management. This consolidation would make the partnerships uniform and provide greater benefit to a larger customer base with lower program costs. Wholesalers have an established network of smaller retail water providers and often have regional water efficiency programs that could be integrated with the regional energy efficiency programs to share the administration costs and jointly promote them at a regional level.

[Metering Differences](#)

There is not a broad solution to differences in customer metering of water identified in the case studies, electricity, and natural gas, but it is a component of efficiency partnerships that should be recognized during program development,

especially in the areas of customer eligibility and marketing. Better inter-utility data sharing and standards to match meters to end users would provide a framework to better align meter to customer across water and energy use.

Marketing Coordination

Target Marketing to Eligible Customers

Early development of a plan to review lists of customers to determine eligibility in the program by each of the partners will facilitate quicker implementation. The SDCWA and SDG&E case study recognizes community-based organizations for playing a significant role in identifying eligible customers and disseminating information about the ESA Program. The IRWD case study describes the process by which they were able to target customers without prior program participation. Briefly, the process began with a pre-screening by IRWD for prior participation in its programs. SoCalGas then pre-screened IRWD's list of eligible customers for past participation in natural gas and electricity programs. Data collaboration with SCE and SGE plus other water utilities would significantly enhance strategic marketing.

Design and Communication Review

A key solution to overcome many of the marketing coordination barriers is to build in time allotments, approval routing and tracking, and understanding agency preferences. Initiating these practices upfront can minimize time lost during program creation. Clear communication at the beginning of the design phase will assist the partners in completing the marketing materials on a timely basis. In IRWD's case study, they stressed the importance of determining early on who will take the lead on the development of program materials, who has final approval on program material design, and how approvals would be sought. This kept the program design phase moving forward. Co-branding and the sharing of another utility's logo requires diplomacy, tact, and possible legal considerations. The IRWD case study addresses the use of logos, as well as their experience choosing words that both agencies can agree to. MNWD's case study also addresses the issue of co-branding. Most importantly, increasing the scale of programs at a more regional level helps to avoid this issue. Sample marketing flyers for the MNWD/SDG&E Business Energy Solutions Program are shown below.

Commercial Kitchens Water & Energy Savings Rebates

Moulton Niguel Water District (MNWD) and San Diego Gas & Electric (SDG&E) have partnered to offer joint customers an easy way to save water and energy. This program provides installation of devices at no cost or a simple co-pay that includes both the water and energy rebates as one combined instant rebate.

PRE-RINSE SPRAY NOZZLES

Complimentary low flow (1.15 gpm) pre-rinse spray nozzles are available to commercial customers who replace an existing standard faucet head that uses 2.0 gpm or an existing pre-rinse spray valve that uses 1.6 gpm.

► **Save over 5,000 gals/year/nozzle!**



FAUCET AERATORS

Replace a public lavatory faucet that uses 2.0 gpm or more with an EPA WaterSense labeled device that uses 1.0 gpm or less and start saving water today! Faucet aerators are **complimentary** to commercial customers of both SDG&E and Moulton Niguel Water District.

► **Save over 500 gals/year/aerator!**

COMMERCIAL STEAM COOKER

Install an ENERGY STAR® labeled commercial electric or natural gas steam cooker and receive a money-saving rebate. New water-efficient, connectionless (pressureless) food steamers save thousands of gallons per year with an estimated 10-year lifespan.

Rebate amount is based on number of food compartments.



COMMERCIAL ICE MACHINE

Upgrade to a new air-cooled commercial ice machine that meets ENERGY STAR® specifications. Make ice faster and more efficiently, while saving thousands of gallons of water per year.

Rebate amount is based on the ice making rate.



Rebate Program

AVAILABLE REBATES

The combination of MNWD water rebates and SDG&E energy rebates can result in significant savings to customers of both utilities. The following table summarizes the water and energy rebates and shows the reduction or elimination of the customer co-pay when participating in SDG&E's Business Energy Savings program in conjunction with MNWD's water rebates. Incentives are provided to qualifying commercial kitchen customers of both MNWD and SDG&E and must be installed by the SDG&E approved contractor in conjunction with a complimentary site assessment.

Measure	Unit	Water Rebate	Energy Rebate	Total Instant Rebate	Customer Co-Pay
Steam Cooker: Electric	Compartment	\$985.00	\$1,250.00	\$2,235.00	Varies*
Steam Cooker: Gas	Compartment	\$985.00	\$2,000.00	\$2,985.00	Varies*
Ice Machine	Machine	\$1,750.00	\$50.00-\$300.00	\$1,800.00-\$2,050.00	Varies*
Pre-Rinse Spray Valve	Spray Valve	Full Cost			Free to Customer
Faucet Aerator	Aerator	Full Cost			Free to Customer

*Varies depending on selected appliance.



A rebate program application and all personal information listed in it becomes public record. By signing a rebate program application, the applicant acknowledges that applicant has no privacy expectations to this information and waives any claim to such.



This program is funded by California utility customers and administered by San Diego Gas & Electric Company (SDG&E*) under the auspices of the California Public Utilities Commission. This program may be modified or terminated without prior notice and program funds are provided to qualified customers on a first-come, first-served basis until program funds are no longer available. Eligibility requirements apply. SDG&E is not responsible for goods and services selected by customers. The selection, purchase, and ownership of goods are the sole responsibility of customer. SDG&E makes no warranty, whether express or implied, including the warranty of merchantability or fitness for a particular purpose, of goods selected by customer. Customers who choose to participate in these programs are not obligated to purchase any additional goods or services offered by participating contractors.



**SAVE YOUR BUSINESS
ENERGY AND MONEY**



Enjoy the benefits of our Business Energy Solutions Program

Participate today to receive the following:

- ✓ **No-cost energy audit** and report of saving opportunities.
- ✓ **Catalog offering various technologies** from LED lighting to kitchen equipment, with some offered at **no-cost**.
- ✓ **0% financing** to eligible customers to help cover the co-pay portion of their projects; ask your assigned contractor for more information on the streamlined process.

FIND OUT MORE

Now available for customers with food service equipment

Eligible commercial customers of SDG&E and the Moulton Niguel Water District can get combined INSTANT rebates for these water and energy saving products:

- ✓ Faucet Aerators – Free!
- ✓ Ice Machines – Up to \$2,050 combined rebate*
- ✓ Steam Cookers: Electric – \$2,235 combined instant rebate*
- ✓ Steam Cookers: Gas – \$2,985 combined instant rebate*

**participation eligibility and rebate amount vary depending on size, model, and customer location.*

FILL OUT THE FORM

Under the "Questions" section of the form be sure to enter water-energy combined rebates.

For more information visit sdge.com/bes or call the Energy Savings Center at 1-800-644-6133.

Customer Awareness/Participation

The solution to increase customer awareness comes down to program promotion. Joint marketing and outreach activities reach a larger audience of potential participants. The creation of a coordinated marketing plan designed to develop a unified seamless experience that is agreed to by all parties is paramount. It cannot be overstated that the process for participation should be as simple as possible. The BWP case study describes how processing delays cause customers to lose interest in participating even when thousands of dollars in retrofits are at stake. The LADWP-SoCalGas partnership emphasizes the biggest beneficiaries are the customers when effort is made to provide them with more services or higher incentives with no additional processing required. Their goal is for one utility to act as lead on a joint program and handle processes on behalf

of the other utility. This “one-stop-shop” approach allows customers to access combined incentives and services while dealing with only one utility.

Program Management

Funding

Water agencies who are not member agencies of MWDSC and do not have direct access to its member agency administered funds have at times elected to cover the program costs themselves. MNWD chose the less administratively burdensome route and rather than adding another layer of contracts with their wholesaler to get access to MWDSC’s funds, they contacted directly with both SDG&E and SoCalGas and provided all supplemental funding for the water and energy-saving devices.

Several of the case studies describe partnership programs that build from existing energy-saving programs with SDG&E or SoCalGas that water utilities joined by providing supplemental incentive funding, as well as marketing and outreach support. The energy utility maintained the overall program management and welcomed the additional financial support to encourage greater customer participation. This simplified cost allocation between partners accelerates program implementation.

Some of the case studies specifically highlight integrated programs with SoCalGas and their Energy Savings Assistance Program (ESAP). The water utilities provide supplemental incentive funding for devices that save water, in addition to energy. Such devices include high efficiency clothes washers, low-flow showerheads, and temperature-initiated tub and shower flow restriction valves. IRWD determined that the high-efficiency clothes washers were a very cost-effective water efficiency measure and provided co-funding to SoCalGas’ direct install program. MWDSC and LADWP also partner with SoCalGas on their ESAP and provide additional funding to further the implementation of the program to their joint customers. MNWD partners with SDG&E on their Business Energy Solutions (BES) program in a similar manner, by contributing additional funds to SDG&E’s incentives that are offered specifically for commercial kitchen devices which save both energy and water.

Evaluation Methodology

One potential solution to address differing program evaluation methodologies is to align the goals of the IOUs and the water agencies. As stated above, the CPUC does not give the IOUs credit for energy savings associated with cold water. IOU programs are evaluated on energy savings, so water is not the focus. If there was a standard BTU or KWH (one can easily be converted to the other) value for

cold water adopted by the CPUC, the evaluation methods would be aligned. IOUs have a difficult time meeting their energy-saving goals with hardened demand and the CPUC's increasing restrictions. If the IOUs could count energy savings from cold water efficiency programs, they would come closer to meeting their goals.

The Climate Registry is a non-profit organization that designs and operates voluntary and compliance greenhouse gas reporting programs globally, and assists organizations in measuring, reporting, and verifying the carbon in their operations in order to manage and reduce it. The Climate Registry measures the benefits and savings of each resource and provides an exchange between different utilities. Its greenhouse gas accounting methodology standardizes estimates across sectors and entities. The UC Davis Center for Water and Energy Efficiency has developed sophisticated approaches to estimating the embedded energy in water through analysis of a variety of water systems down to operational zones to evaluate the energy embedded by pressure zone.

MWDSC's Innovative Conservation Program is a grant program that provides funding for research on water-efficient devices and technologies. They could potentially examine research projects looking to create a standardized evaluation methodology.

One other method is that each sector independently calculates its own avoided cost to set its own incentive level. The LADWP-SoCalGas partnership case study recognizes the savings metrics for water, natural gas, and electricity are calculated and measured differently, however, each utility takes responsibility for their own savings evaluations.

The SDCWA SDG&E ESAP case study includes a table representing estimated water savings for each measure installed.

The table below represents water savings estimates and incentive levels for each measure type installed. Note: The savings for faucet aerators was calculated separately and not included in the table.

Measure	Source	Gallons/Year	Product Life	Gallons/Lif	AF/Life	\$195/AF
Showerhead	AWE	2062	10	20620	0.063280467	\$12.34
Thermostatic Tub Diverter (SF)	PUC Letter 5084-A	1806.95	10	18070	0.055454803	\$10.81
Thermostatic Tub Diverter(MF)	PUC Letter 5084-A	2017.62	10	20176.2	0.061917881	\$12.07
TRV Only ¹	SDG&E Work Paper	511	10	5110	0.01568202	\$3.06
Showerhead/TRV Combination	SDG&E Work Paper	3364	10	33640	0.10323739	\$20.13

Courtesy of SDCWA case study

Contracts with Third-Party Audit and Installation Contractors

As noted in the IRWD case study, there is room for growth in the installation sector for those who can perform both water and energy audits, as well as install both types of efficiency measures. Water utilities realize significant benefit when partnering with SDG&E, SCE, and SoCalGas as they typically manage the contracts with the third-party auditors and installation contractors. This partnership design tends to speed up the invoice process. Also, the SDCWA/SDG&E case study noted that the inspection rate for the ESA program is 100% of installed appliances, compared with an average 10% inspection rate under other programs.

Program Administration

IRWD's case study highlights the importance of having support at the top of the organization to ensure key stakeholders are involved from the very beginning, thus paving the way for a smoother management process. There is not a specific solution to the differing budget cycles that exist between water and energy utilities, but many partnerships have overcome this issue. Also, being aware that SDG&E and SoCalGas have different program managers for each program should make it easier to develop strategies to address the potential barriers. SDCWA and SDG&E have collaborated on water and energy efficiency for more than 25

years, and recently developed a strategic partnership framework that identified four opportunities to quick-start their efforts. Their framework table is shown below and provides valuable insight into prioritizing programs.

SDCWA & SDGE Framework's Initial Programs for Quick Start

Program Name	Description
Program 1: Indoor Water Use Efficiency	Co-fund and co-market deemed water conservation measures eligible for MWD incentives to increase and accelerate adoption by retail water customers within SDCWA's service area.
Program 2: Coordinated Water and Energy Audits	Coordinate provision of technical audits and assistance to shared customers, leveraging each Partner's unique relationships with targeted market sectors and customer segments to efficiently and economically deliver technical water and energy efficiency audit services to shared customers.
Program 3: Outdoor Water Use Efficiency	Leverage existing water sector programs for outdoor water efficiency, both agricultural and non-agricultural (residential, commercial, industrial and institutional).
Program 4: Customized Projects	Accelerate adoption of water efficient practices, processes and technologies by very large water users through customized projects and seek co-funding from a wide variety of potential partners, including state and federal agencies that provide water and energy efficiency and technology grants, subsidies and incentives.

Recommendations and Next Steps

This white paper offers a collection of areas where utilities were able to overcome barriers or challenges with water and energy utility partnerships by developing key innovations in resource efficiency programs. The idea of inter-utility programs is not new:

“Analysis is needed of incentives, disincentives, and lack of incentives to invest in cost-effective energy or water efficiency measures. One area of interest is regulatory barriers to co-implementation of efficiency programs in the water and energy sectors.” AWE, Congressional Research Service paper titled Energy-Water Nexus: The Water Sector’s Energy Use, by Claudia Copeland and Nicole Carter.

Overall, the solution is to work at a coordinated regional level and facilitate broad cooperation. Over the past decade, the projects identified in the case studies show that the groundwork has been laid to build more success into the future. However, the value of these programs to better serve the public interest in resource efficiency necessitates action to reduce the cost to action. In reviewing the case studies and the experience of utilities developing these partnerships, the SCWC has identified key recommendations for further work towards moving these partnerships forward:

1. Further evaluate regulatory misalignment. Support efforts to streamline collaborative inter-resource efficiency program development across state agencies to align state resource efficiency objectives.
2. Support efforts to streamline research of inter-resource efficiency programs and developing a standardized methodology to calculate the embedded energy in water.
3. Support efforts to protect personally identifiable information data while creating streamlined pathways to enable the ease of sharing of data to support collaborative inter-resource research.
4. Develop streamlined legal contracting pathways to public-private resource efficiency programs.

The newly released Governor’s Water Resilience Portfolio calls on “Greater efficiency of water use in all sectors”. In particular, Recommendation 2.4 calls for updates to the Water-Energy cost effectiveness calculator. Further consolidated support for these efforts will move the needle forward in making water conservation a California way of life.

Appendix A Summary Table of Partnership Programs Identified in Case Studies

#	PROGRAM TITLE	PARTNER AGENCIES	PROGRAM TYPE	PROGRAM SUMMARY
1	High Efficiency Clothes Washer Program	MWDSC & SoCalGas	Direct Install	MWDSC provides rebates to SoCalGas for every washer replaced for free on their income-qualified Energy Savings Assistance Program (ESAP). SoCalGas's program, MWD adds funding which allows the program to cover a larger market and lets MWD document progress toward water savings goals on MWD's IWRP.
2	CA Friendly Landscape Classes & Training Handbook	MWDSC, SoCalGas, & LADWP	Education, Training, and Outreach	Starting in 2012, SoCalGas began providing water and energy efficient landscape training classes; MWDSC staff provide in-kind services/consultations. In 2016, SoCalGas arranged to print a booklet which was co-funded by MWDSC and LADWP and is now available online for free to all member agencies.
3	Commercial Restaurant Retrofit Program	MWDSC & SoCalGas	Rebate	SoCalGas has a contractor audit a site's water and energy use to establish baseline usage. Participating restaurants may qualify for 2 kinds of incentives, Basic - payable upon verified installation of an efficiency measure. If it's a measure that uses water, then MWDSC adds funds. Other incentive is Whole-Building incentive - performance based comparison of the year before and the year after the measure(s) have been implemented, amount based on the water/energy savings, designed to encourage implementation of multiple measures.

#	PROGRAM TITLE	PARTNER AGENCIES	PROGRAM TYPE	PROGRAM SUMMARY
4	On-Premise Ozone Laundry Program	MWDSC & SoCalGas	Rebate	Installing Ozone equipment inline with commercial laundries to remove/reduce the need for hot water, detergents, and chemicals. SoCalGas will be hiring a contractor to implement the program and contact potential commercial sites, MWDSC supplies funding based on pounds of washer capacity.
5	Innovative Conservation Program	MWDSC & SoCalGas	Grant	Six, 2-yr funding cycles have funded diverse research into water-saving technologies with some assistive funding from SoCalGas. Water saving technologies have been studied in many different types of applications, residential, commercial, agricultural, indoor, outdoor. Some have been accepted into broader or specifically targeted rebate programs.
6	Partnership Program - HECW	IRWD, Southern California Edison & SoCalGas	Direct Install	SoCalGas offers income-qualified customers with rebates on equipment including high efficiency clothes washers through the Energy Savings Assistance Program (ESAP). IRWD provides washer rebate applications to the ESAP program and then offers additional funding on top of the SoCalGas rebate which encourages higher participation in the program.
7	SDG&E's Business Energy Solutions Program for Commercial Kitchens	MNWD & SDG&E	Direct Install	Businesses with commercial kitchens receive free water & energy audits, free devices, and deep discounts on high efficiency appliances such as ice machines and connectionless food steamers, through a direct install program. SDG&E manages the program and the third-party contractor. MNWD provides supplemental funding to shared customers.

#	PROGRAM TITLE	PARTNER AGENCIES	PROGRAM TYPE	PROGRAM SUMMARY
8	SoCalGas Energy Savings Assistance (ESA) Program	MNWD & SoCalGas	Direct Install	Income qualifying residential customers of both utilities receive energy and water saving measures and incentives. MNWD pays SoCalGas an administration fee for managing the program.
9-28	20 Current Residential, Commercial, & Cross-Cutting Programs	LADWP & SoCalGas	Varies - Rebates, Direct Install, Technical Services, Research &/or Demonstration Programs	<p>20 Joint programs fall into three categories.</p> <p>Residential - California Advanced Homes (New construction), Energy Upgrade California (Whole Home), Multi--Family Energy Upgrade California, Energy Savings Assistance Program (ESAP), HVAC Optimization, Home Energy Improvement Program (HEIP), Water Energy Kit Distribution 2018.</p> <p>Commercial - Commercial Direct Install (CDI), Comprehensive Food Service, Engineering Support for Calculated Programs, Savings By Design (New Construction), University of CA/State of California Partnership, Los Angeles Community College District Partnership, LAUSD Direct Install and Educational Outreach.</p> <p>Cross-Cutting - Codes & Standards Education, Training, & Outreach, Emerging Technologies, LA Better Buildings Challenge, LA Chamber of Commerce Marketing Outreach</p>
29	Home Improvement Program (HIP)	BWP & SoCalGas	Direct Install	The HIP provides residential customers energy and water home upgrades and weatherization services at no cost.