

**Quality and Productivity Commission
31st Annual Productivity and Quality Awards Program
"Celebrating Quality Service"**

2017 APPLICATION

Title of Project (Limited to 50 characters, including spaces, using Arial 12 point font):

NAME OF PROJECT: SUSTAINABLE ENERGY SOLUTIONS —ENERGY MASTER PLAN

DATE OF IMPLEMENTATION/ADOPTION: JUNE 2015
(Must have been implemented at least one year - on or before July 1, 2016)

PROJECT STATUS: Ongoing One-time only

HAS YOUR DEPARTMENT PREVIOUSLY SUBMITTED THIS PROJECT? Yes No

EXECUTIVE SUMMARY: Describe the project in 15 lines or less using Arial 12 point font. State clearly and concisely what difference the project has made.

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The Los Angeles County Waterworks Districts' (Districts) Energy Master Plan (EMP) is a portfolio of 15 cost-effective and environmentally-sustainable programs and projects to reduce the Districts' future energy usage and costs, as well as reduce greenhouse gas (GHG) emissions. The EMP provides the Districts with an organized, systematic, and long-term strategy towards this lasting issue of maintaining reasonable rates for its services. These 15 identified projects, when fully implemented, have the potential to reduce both the Districts' electrical costs and electrical consumption by \$2.1 million and 18 million kilowatt hours annually. In addition, the District will reduce 12,600 metric tons of GHG annually.

BENEFITS TO THE COUNTY

(1) ACTUAL/ESTIMATED ANNUAL COST AVOIDANCE	(2) ACTUAL/ESTIMATED ANNUAL COST SAVINGS	(3) ACTUAL/ESTIMATED ANNUAL REVENUE	(1) + (2) + (3) = TOTAL ANNUAL ACTUAL/ESTIMATED BENEFIT	SERVICE ENHANCEMENT PROJECT
\$0	\$2.1 MILLION	\$0	\$2.1 MILLION	<input type="checkbox"/>

ANNUAL = 12 MONTHS ONLY

SUBMITTING DEPARTMENT NAME AND COMPLETE ADDRESS
Los Angeles County Department of Public Works —Waterworks
900 S Fremont Ave Alhambra, CA 91803

TELEPHONE NUMBER
(626) 300-3385

PROGRAM MANAGER'S NAME
~~Ramy Mattar~~ T.J. Kim

TELEPHONE NUMBER
626-300-3354 3327

EMAIL
~~rmattar@dpw.lacounty.gov~~ tjkim

PRODUCTIVITY MANAGER'S NAME AND SIGNATURE
(PLEASE CALL (213) 893-0322 IF YOU DO NOT KNOW YOUR PRODUCTIVITY MANAGER'S NAME)
Leslie Schenk

DATE

TELEPHONE NUMBER
626-458-5946

EMAIL

DEPARTMENT HEAD'S NAME AND SIGNATURE
Mark Pestrella

DATE

TELEPHONE NUMBER
626-458-4001

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1st FACT SHEET – LIMITED UP TO 3 PAGES ONLY: Describe the **challenge(s), solution(s), and benefit(s)** of the project. What quality and/or productivity-related outcome(s) has the project achieved? Provide measures of success. Use Arial 12 point font.

Challenge

The Los Angeles County Waterworks Districts, a division of the County of Los Angeles

Department of Public Works, provide customers of five water systems in the Antelope Valley, Kagel Canyon, Val Verde, Acton, and Malibu with potable water from local groundwater and purchased imported water. The Districts serve approximately 240,000 people through 67,000 connections. The Districts also operate and maintain 115 water storage reservoirs (over 80 million gallons), 54 groundwater wells, 137 booster pumps and pressure regulating stations, and 1,374 miles of water mains.

The Districts' mission is to provide reliable, high-quality water in a safe, cost-effective, sustainable, and environmentally responsible manner. Since the 1960's electric rates have steadily increased from 2.5¢ per kilowatt hour (kWh) to 10¢ per kWh in 2010. Due to such a significant increase, the Districts have spent approximately \$3.5 million a year for its electricity consumption in recent years. Additionally, the Districts expect to consume more electricity to meet larger customer demands in the future. The consumption of greater amounts of electricity means more GHG emissions will be

generated in the process of creating power from fossil fuels. As public servants and stewards of the environment, it is our job to be responsible and use electricity efficiently.

Prior to 2014, the Districts initiated programs such as, Well Maintenance Program, Optimization of Electric Rates, and a Renewable Energy Program to mitigate rising costs in electricity and increases in electrical consumption. From 2007 to 2014, these programs have reduced electrical consumption by approximately 5 million kWh and avoided close to one million dollars in utility costs.

Although these programs have been successful, there is a lot more that can be done. In 20 years it is estimated that electric costs will increase from \$3.5 million per year to \$11.5 million per year and that electrical consumption will increase from 31 million kWh per year to 49 million kWh per year.

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Use Arial 12 point font.

Solution

The Districts' goals to improve, optimize, and reduce its energy consumption and GHG missions necessitated the development of an Energy Master Plan (EMP). The EMP identifies a portfolio of cost-effective programs and projects to reduce the Districts' future energy usage and costs, as well as GHG emissions.

The EMP included 4 major parts;

- Present State: A baseline was established to determine the average values of Electrical Consumption, Electrical Cost, and GHG missions from 2011, 2012, and 2013.
- Project Identification: 45 projects were considered and evaluated, 15 projects were selected based on initial cost, savings, and GHG reductions.
- Project Implementation: Each project was assigned to an appropriate team, funds were allocated and projects schedules were prepared.
- Follow Up: Tracking the progress of the project with respect to energy reductions, cost savings, and GHG elimination. The EMP will be updated every three to five years based on results and changes in technology

Benefit

Once fully implemented, the 15 projects selected are projected to reduce the cost of energy by approximately \$2.1 million, reduce the electrical usage by 18 million kWh and eliminate 12,600 metric tons of GHG annually. The selected projects include:

A Five Megawatt Solar Field Array designed to generate an estimated of 1.46 million kWh per year, reducing GHG emissions by 1,260 metric tons.

A Pressure Reducing Turbine at a water distribution facility to harvest energy from the pressure drop turning it into green electricity. The project will produce 1.4 million kWh per year of clean and sustainable energy and reduce of GHG emissions equivalent to those from 210 passenger vehicles.

Resizing our fleet and considering alternative fuels to be more efficient while maintaining our current level of service in all areas. This would reduce fuel consumption by approximately 20 percent and eliminate the use of almost 20,000 gallons annually, resulting in reductions of GHG emissions and lowering costs for our customers.

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Installing Variable Frequency Drives to reduce amount of pumping needed to serve customer in Acton, California resulting in \$14,500 of annual savings and the elimination of metric tons of 91 GHG annually.

Additional projects included in the EMP include: installing solar carports, energy efficient interior lighting in a field office, waterline replacement for more efficient pumping operation, and installing automated water treatment/monitoring facilities that would significantly reduce field visits.

Linkage to the County Strategic Plan – 1 page only. Which County Strategic Plan goal(s) does this project address? Explain how. Use Arial 12 point font.

The EMP is noteworthy for the following accomplishments: innovative, sustainable, efficient, and cost-effective. The implementation of the plan will help fulfill the Countywide Strategic Plan of Operational Effectiveness/Fiscal Sustainability (Goal 1) and Integrated Services Delivery (Goal 3) by improving water service reliability for the District's customers.

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COST AVOIDANCE, COST SAVINGS, AND REVENUE GENERATED (ESTIMATED BENEFITS TO THE COUNTY): If you are claiming cost benefits, include a calculation on this page. Please indicate whether these benefits apply in total or on a per unit basis, e.g., per capita, per transaction, per case, etc. You must include an explanation of the County cost savings, cost avoidance or new revenue that matches the numbers in the box. Remember to keep your supporting documentation. Use Arial 12 point font

Cost Avoidance: Costs that are eliminated or not incurred as a result of program outcomes. Please indicate whether these are costs to the County or to other entities.

Cost Savings: A reduction or lessening of expenditures as a result of program outcomes. Please indicate whether these were expenditures by the County or by other entities.

Revenue: Increases in existing revenue streams or new revenue sources to the County as a result of program outcomes.

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Part of the energy master plan was to forecast savings and ghg emission reduction for the selected projects over a 20 year time period to determine improvement from a baseline. A baseline is established to measure performance of future programs and projects identified in the energy master plan. The baseline is constructed using 3 years' worth of

Recent electrical usage at pump stations, money spent on electricity , ghg emissions, and other relevant data. The values in the table summarize total cos savings that span over the first 20 year for the selected projects in this energy master plan

PRPJECT COST	PROJECT SAVINGS	NET PROJECT SAVINGS	ANNULA AVERAGE SAVINGS
\$31 MILLION	\$73 MILLION	\$42 MILLION	\$2.1 MILLION