Funding Opportunity Announcement No. R21AS00300

WaterSMART Grants:
Small-Scale Water Efficiency Projects for Fiscal Year 2021

PALMDALE WATER DISTRICT
Advanced Metering Infrastructure Project

March 17, 2021
Palmdale, California
Los Angeles County

Project Summary
The project will install the Advanced Metering Infrastructure (AMI) and implement a customer engagement software that will allow customers to proactively manage their accounts either by computer or mobile device. The project will allow Palmdale Water District to transition to the AMI system as old meter registers are replaced.

The primary purpose is to encourage customers to understand water usage, improve conservation, and increase water use efficiency.

Palmdale Water District
2029 E. Avenue Q
Palmdale, CA 93536

Project Manager
Scott L. Rogers, P.E.
Engineering/Grants Manager
Palmdale Water District
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Executive Summary

March 17, 2021

Palmdale Water District, Palmdale, Los Angeles, California

The District is a Category A applicant.

Palmdale Water District (PWD) is located in City of Palmdale in Los Angeles County, which is approximately 30 miles northeast of Los Angeles in Southern California. The project will implement an Advanced Metering Infrastructure (AMI) by installing the five gateways needed to start collecting usage data from the AMI registers. The gateways receive data from the water meters, which is then transmit through a cellular connection to the cloud. The data is then populated into the billing system. The consumption data is then utilized by a customer portal which will allow customers to view their usage and provide alerts to increased usage. Additionally, customer service representatives will be able to pull up customer accounts and provide customized messaging to customers to the District's available conservation rebates.

It is estimated that the project will take six months to complete upon receiving the grant funding.

This project is not located in a federal facility.

Project Location

The AMI project is located in Los Angeles County, California approximately 30 miles northeast of Los Angeles California. The five gateways will be installed on existing facilities at various locations within the District's service area boundary and shown in Figure 1.

Project Description and Milestones

On May 1, 2020, District staff prepared a Request for Proposals (RFP) determine the best solution to meters procurement and future technology enhancements associated with the full deployment of an AMI system. The RFP requested vendors and manufacturer recommend a solution and costs necessary to implement an AMI system and customer portal. Each manufacturer performed a propagation study based on the existing locations of Palmdale Water District's facilities. The customer engagement portal must provide customer usage, costs, and recommendations for water conservation. The District received five proposals on June 18, 2020 and selected meter manufacturer to provide the meters and future technology improvements. The project will have the vendor install five gateways to receive the consumption data from the meter registers, transmit the data to

the cloud through a cellular modem, and integrate the data into the District's billing system. A customer portal software will also be developed and implemented to allow customers to view consumption data. This will allow the District's customer service staff to identify possible customer leakage and engage customers on the conservation rebate options available to customers.

Since late 1800's, Palmdale Water District operates and maintains a water system with the City of Palmdale and surrounding area. The source of supply for the District is from 21 active groundwater wells and a 35 million gallon per day water treatment plant that receives water from the State Water Project and local surface water from the San Gabriel Mountains. The wells withdraw water from the Antelope Sub-basin aquifer as identified in California Department of Water Resources Bulletin No. 118. All the water is pumped is for municipal, domestic, and industrial users through ten pressure zones and 412 miles of pipeline.

The District serves a population a little over 117,000 and a service area size of approximately 47 square miles. As of December 2020, there were 26,843 active connections to the system. In the next 15 years, the District's population is estimated to increase nearly 60-percent to over 280,000 people by 2035. Table 1 shows the projected demand for the District by 2040 at 31,100 acre-feet. In 2019, the District approved a five-year rate plan which will impact average customer bill. Implementing the AMI system and customer engagement portal will allow customers to better understand their water usage. Furthermore, the project will provide more focused and effective outreach of conservation rebates offered by the District.

FIGURE-1

Table 1- Water Demands

Year	Annual Average Demand (AF/yr)
2015	**24,809**
2020	**25,900**
2030	**28,500**
2040	**31,100**
2050	**33,873**
2060	**36,892**
2070	**40,181**
2080	**43,764**
Buildout	***44,600***

Evaluation Criteria

Criterion A—Project Benefits

- *Describe the expected benefits and outcomes of implementing the proposed project.*

  The expected benefits and outcomes of implementing the project are water consumption accuracy, data transparency, water waste detection, increased awareness of water usage by customers and better conservation messaging to customers, which will create water savings. The first outcome is increased water use efficiency by residents and identifying potential unknown leaks on the customer plumbing system. District's customer services representatives will be able to identify unusual water usage patterns potentially resulting from customer leaks and reach out to customers to check their plumbing systems for leaks. By increasing consumption accuracy and data transparency, the objective of increased customer efficiency and customer engagement. Customers will have better control over of water usage and more importantly the water bills. This is especially important in the project area as the community of Palmdale is disadvantaged community (DAC) according to the State of California Department of Water Resources at below 80% of statewide median household income at $50,647. Based on 2020 customer data, the average water bill is $67 for residential customers, which is 1.5% of the medium household income.

  Another benefit of the project is more efficient use and reduced need for supply from the overdrafted Antelope Valley groundwater basin. This will be increasingly important as total water demands increase while water sources remain relatively constant. The project will allow customers access to their daily and hourly water usage information to better manage their water use. The use of this information will lead to a reduction in the per capita usage and more efficient use of the District's water supplies.

Based on current usage data, the District estimates a savings of **3 percent** and a total average demand of 1,354 AFY over the last five years, or estimate **savings of nearly 41 AFY**

- *What are the benefits to the applicant's water supply delivery system?*

  The project once fully implemented will provide two notable benefits. First, the project will give District staff the ability to understand usage through hourly and daily water demand data, which allows for more efficient operation and delivery of the District's water supply. Secondly, the project will assist with planning of future improvements to the distribution system and water supplies.

- *If other benefits are expected explain those as well. Consider the following:*

  Additional benefits include better forecasting of supply needs by utilizing additional daily and/or hourly demand data, which will reduce the overall needed water supply from either the State Water Project, local surface water, or Antelope Valley groundwater aquifer and allow more time for the implementation of other supply options such as indirect potable reuse of recycled water. Furthermore, the District can use the hourly and daily demands, to improve water distribution and a reduction of the required costs for pumping.

Criterion B—Planning Efforts Supporting the Project

- *Does the proposed project implement a goal or address a need or problem identified in the existing planning effort?*

  In July 2020, the Palmdale Water District prepared an engineering report, Advanced Metering Infrastructure (AMI) and Customer Portal. This report reviews, evaluates implementation, estimated costs and recommends a solution for the implementation of advance metering infrastructure (AMI) and customer portal.

  The proposed project also directly aligns with, and contributes to, regional water resources planning goals for increased water use efficiency and improved long-term water supply reliability. The natural resource agencies and other regional and state-level stakeholders collaborate Integrated Regional Water Management (IRWM) planning efforts. One of the primary goals of the IRWM is to protect, conserve, and augment local water-supply portfolio to increase local water resilience

- *Explain how the proposed project has been determined as a priority in the existing planning effort as opposed to other potential projects/measures.*

The District has moved from manual meter reading to Automated Meter Reading (AMR) over the last couple decades. While AMR is a more efficient process of collecting meter reads for billing purposes than manual meter reading, but it still falls short of providing our customers useful real-time information about their water usage. Moving to an AMI system is the only way to provide better information for our customers. The implementation of AMI would greatly impact the interaction of customers on a real-time basis with their water usage, encourage conservation and provide a platform for the utility to engage its customers. The ability for customers to view their account and manage their water use is important for not only conservation but also ability for the customer to manage and understand the cost of using water, which will increase water conservation through changes in usage behaviors by customers.

The only alternatives for moving to an AMI system are the various approaches from manufacturers and vendors. The District reviewed the options in proposals received in June 2020 and selected the vendor with the proven technology at lowest cost to implement.

Criterion C—Project Implementation

- *Describe the implementation plan for the proposed project. Please include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.*

The proposed AMI system consists of gateways and meter radio registers. PWD needs a system of five gateways to cover all of our customers' water meters. The gateways receive the data from the water meter radio registers. The proposed locations for the five gateways are located at the locations shown in **Table 2**. Gateways are mounted at a height on existing facilities to provide coverage of the District.

Table 2 –Gateway Locations

Locations
Vista View Booster
Well 25
5 MG Reservoir
47th Street Tanks
Well 10

The gateways require electricity and antenna towers if not readily available at the sites. Installation of the AMI system is estimated to take 90 days after execution of contract with the vendor. The customer portal will then be developed and tested. A customer outreach program will also be developed and implemented before activating the customer portal.

The tentative schedule assumes the grant agreement will be executed in July.

Work Item	July	August	September	October	November	December
Environmental Compliance						
AMI System						
Customer Portal						

The meter registers will send to or receive data from the gateways. The usage data is sent on intervals of 15 minutes, 30 minutes or 1 hour. The ability to provide usage data to customers is important for managing their consumption and more importantly the cost of their bill. Additionally, the collection of data will be able to allow customer service representatives to do meter interrogations on their desktops and inform the customer of usage periods (e.g. irrigation timers running for 6 hours). Furthermore, the software collecting the data will use built-in analytics to identify homes with leaks. As part of the proposed system, letters will be automatically sent to those customers.

Below is the replacement schedule for the following meters. Under the General Accounting Office (GAO) 13, meters need to be replaced to accurately register flow volume used by each customer. Currently, 7,760-meter registers need to be replaced in the next four years is shown in **Table 3**.

Table 3 - Meter Replacements

Meter Size (inches)	**Estimated Quantities by Year**					**Totals**
	2020	**2021**	**2022***	**2023***	**2024***	
5/8 x 3/4**	1,575	2,137				3,749
3/4	0	0	1,000	1,000	1,000	3,000
1	808	113				921
1 1/2	49	22				71
2	39	17				56
Totals by Year	2,471	2,289	1,000	1,000	1,000	7,760

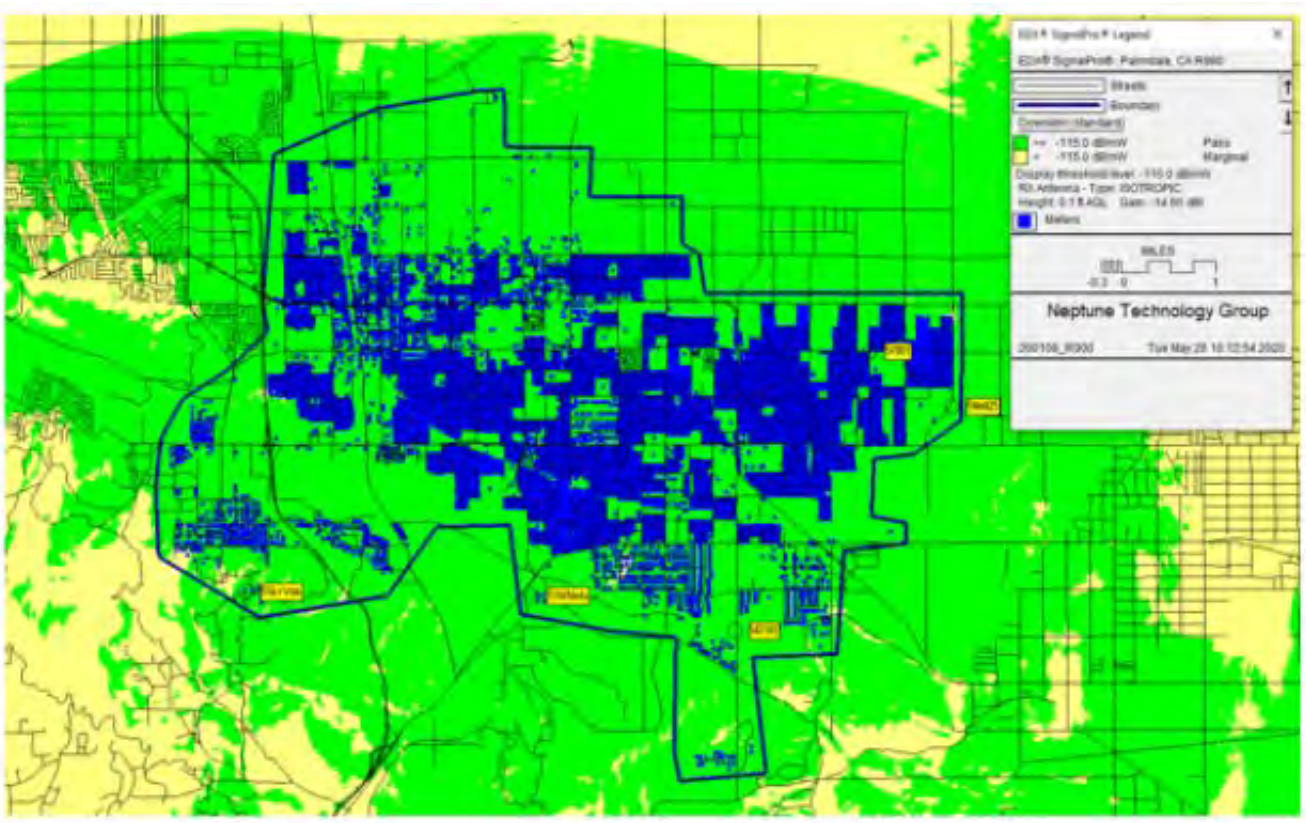
- *Describe any permits that will be required, along with the process for obtaining such permits.*

Currently, no permits are expected for the project.

- *Identify and describe any engineering or design work performed specifically in support of the proposed project.*

  The project will be design-build by the selected meter manufacturer. The supplier and manufacturer were awarded the project through procurement process as the meter manufacturer to provide the metering and AMI equipment in August 2020. Due to compatibility, it is reasonable for the AMI infrastructure to be provided by, designed, and built by the selected meter manufacturer. The AMI system is proposed to include AMI meter registers, gateways, cellular modem, cloud hosted data storage and software-as-a-service. The advantages of the selected meter

Figure 2 - Propagation Study Map



manufacturer's system are the ability to migrate from AMR to AMI, the ability for the system to communicate both two-way either from register to the base station or vice-versa. Additionally, the register is fully encapsulated preventing tampering and water intrusion issues. As part of the procurement process a propagation study was done to determine the requirements of the AMI system. Below in Figure 2 shows the initial propagation study done to determine the required number of gateways to get complete coverage of the District service area.

- *Describe any new policies or administrative actions required to implement the project.*

  No new policies or administrative actions are required to implement the project.

- *Describe the timeline for completion of environmental and cultural resource compliance. Was the timeline for completion of environmental and cultural resource compliance discussed with the local Reclamation office?*

  The project is anticipated to fall within a Categorical Exemption pursuant to CEQA and a Categorical Exclusion pursuant to NEPA and will not require further compliance measures.

Criterion D— Nexus to Reclamation

- *Is the proposed project connected to a Reclamation project or activity? If so, how?*

  Answer: Project would contribute indirectly to the Central Valley Project in that it would reduce demands on trans-basin diversions from California's Central Valley due to the sharing of facilities with the State Water Project.

- Does the applicant receive Reclamation project water?

  Answer: No

- Is the project on Reclamation project lands or involving Reclamation facilities?

  Answer: No

- Is the project in the same basin as a Reclamation project or activity?

  Answer: No

- Will the proposed work contribute water to a basin where a Reclamation project is located?

  Answer: Project would contribute indirectly to the Central Valley Project in that it would reduce demands on trans-basin diversions from California's Central Valley due to the sharing of facilities with the State Water Project.

- Will the project benefit any tribe(s)?

  Answer: The project may help Reclamation meet trust responsibilities to Indian tribes to the extent that by reducing demands on SWP imports the project will help improve conditions on water resources that could benefit Reclamation projects, as described above.

Project Budget

Funding Plan and Letters of Commitment

The PWD will contribute cash of $125,000 for the project. The project would help meet the District's water conservation goals as mandated by the State of California. The table below displays a summary of non-Federal and Federal funding sources.

Funding Sources	Amount
Non-Federal	
1. Palmdale Water District (Cash)	$125,000
Non-Federal Total	**$125,000**
Other Federal Entities	
Other Federal Entities	$ 0
Requested Reclamation Funding	**$75,000**

Budget Proposal

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	$/Unit	Quantity		
Salaries and Wages				
Employee 1	Not applicable			$ 0
Fringe Benefits				
Full-Time Employees	Not applicable			$ 0
Equipment				
Item A	Not applicable			$ 0
Supplies and Materials				
Item A	Not applicable			$ 0
Contractual/Construction				
AMI System	Lump Sum	1	Lump Sum	$137,500
Customer Portal	Lump Sum	1	Lump Sum	$62,500
TOTAL DIRECT COSTS				**$200,000**
Indirect Costs				
Type of rate	Not applicable			**$ 0**
TOTAL ESTIMATED PROJECT COSTS				**$200,000**

Budget Narrative

- *Salaries and Wages*
  Answer: Not applicable

- *Fringe Benefits*
  Answer: Not applicable

- *Travel*
  Answer: Not applicable

- *Equipment*
  Answer: Not applicable

- *Materials and Supplies*
  Answer: Not applicable

- *Contractual*
  Answer: The District's Board has approved vendors to provide, install and implement the AMI system at a cost of $137,500 and the customer portal at a cost of $62,500.

- *Environmental and Regulatory Compliance Costs*
  Answer: Not applicable

- *Other Expenses*
  Answer: Not applicable

- *Indirect Costs*
  Answer: Not applicable

- *Total Costs*
  Answer: **$200,000**

Environmental and Cultural Resources Compliance

- *Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)?*
  Answer: The proposed project will not have an impact on the surrounding environment. All work will be done within existing District facilities.

- *Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?*

Answer: Not aware of any species listed or proposed to be listed that will in the project area. Project is above ground and on existing District facilities.

- *Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as "Waters of the United States?"*
  Answer: No.

- *When was the water delivery system constructed?*
  Answer: Not Applicable

- *Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)?*
  Answer: Not applicable.

- *Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places?*
  Answer: None

- *Are there any known archeological sites in the proposed project area?*
  Answer: None
- *Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?*
  Answer: No

- *Will the proposed project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?*
  Answer: No

- *Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?*
  Answer: No

Required Permits or Approvals

No permits or approvals will be required as part of this project.

Letters of Project Support

ANTELOPE VALLEY - EAST KERN WATER AGENCY
AVEK
ESTABLISHED 1959

A PUBLIC AGENCY

March 9, 2021

Bureau of Reclamation
Attn: Mr. Matthew Reichert
Denver Federal Center
Bldg. 67, Rm. 152
6th Avenue and Kipling Street
Denver, CO 80225

RE: WaterSMART 2021 Water and Energy Efficiency Small-Scale - Palmdale Water District - Advanced Metering Infrastructure Program

Dear Mr. Reichert,

On behalf of the Antelope Valley-East Kern Water Agency (AVEK), I encourage you to support Palmdale Water District's (PWD) application for the 2021 Water and Energy Efficiency Small-Scale Grant through the Bureau's WaterSMART program. The District intends to use the funds to install Advanced Metering Infrastructure (AMI) in the PWD service area as a first step to a larger District-wide AMI effort to promote water conservation through "smart' metering technology that provides real-time data and information to water staff and customers. The customers will have access through the web and mobile application to monitor the consumption of their home. This effort will help reduce water usages by stopping leakages and water over-usage in a timely and efficient manner, thereby translating into significant water savings.

AVEK serves approximately 23 municipal and Federal agencies (population over 500,000) as a wholesale water supplier with water from the State Water Project (SWP) and the same groundwater basin as PWD. Additionally, AVEK provides groundwater replenishment through several groundwater recharge facilities located throughout the Antelope Valley. Converting from standard meters to AMI will also help the PWD further reduce its reliance on SWP for raw water supply for its water treatment plant, which directly aligns with Antelope Valley Integrated Regional Water Management Plan.

We look forward to working closely with PWD as they implement the AMI project to ensure consistency with regional goals and best practices. We encourage your support of this important project and urge your favorable consideration.

Sincerely,

Dwayne Chisam
General Manager, AVEK

6500 WEST AVENUE N • PALMDALE, CALIFORNIA 93551
(661) 943-3201 • www.avek.org • info@avek.org

The mission of AVEK is to deliver reliable, sustainable and high quality supplemental water to the region in a cost-effective and efficient manner.

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a place to call home

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The City of Palmdale has a population of approximately 156,737 residents and PWD supplies most of them with water from groundwater wells and a surface water treatment plant through a connection with the California's State Water Project. The City of Palmdale is a disadvantaged community with a medium household income (MHI) of $54,921. Currently, our average water bills range around $67, or 0.0012% of MHI.

Converting from standard meters to AMI will also help PWD further reduce its reliance on State Water Project for raw water supply for its water treatment plant, which directly aligns with Antelope Valley Water Management Plan.

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Sincerely,

J.J. Murphy, ICMA-CM
City Manager

Official Resolution

RESOLUTION NO. 21- 7
A RESOLUTION OF THE BOARD OF DIRECTORS OF THE PALMDALE WATER DISTRICT APPROVING THE DISTRICT'S GRANT APPLICATION FOR THE ADVANCED METERING INFRASTRUCTURE PROJECT FOR THE U.S. BUREAU OF RECLAMATION'S WATERSMART GRANTS SMALL SCALE WATER EFFICIENCY PROJECTS FOR FISCAL YEAR 2021

WHEREAS, the United States Department of Interior, Bureau of Reclamation (the "Bureau") has established the WaterSMART: Small-Scale Water Efficiency Projects Program for 2021 (the "WaterSMART Program") to provide funding opportunities for entities seeking new water supplies using water efficiency technology;

WHEREAS, the Palmdale Water District has need for funding to complete the Advanced Metering Infrastructure Project to meet future municipal and industrial water needs;

WHEREAS, the WaterSMART Program requires at least 50 percent non-Federal cost share funding and/or in-kind contribution from applicants and the Board finds the District has the capability of funding its required share of the Project.

NOW THEREFORE, THE BOARD OF DIRECTORS OF THE PALMDALE WATER DISTRICT DOES HEREBY RESOLVE AS FOLLOWS:

SECTION 1. Funding for the Advanced Metering Infrastructure Project (the "Project") under the WaterSMART Grant Program meets the objectives of Strategic Initiative No. 1 – Water Supply Reliability.

SECTION 2. If selected for a WaterSMART Grant, up to 50% ($75,000) of the total project costs of $150,000 through monetary contribution shall be committed for funding the District's proportionate share of the Project, as may be required by the Bureau of Reclamation under the WaterSMART Grant Program, and the District will work with the Bureau to meet established deadlines for entering into an agreement to commit such funds.

PASSED, APPROVED, AND ADOPTED THIS 8th day of March 2021.

Gloria Dizmang, President
Board of Directors
Palmdale Water District

Kathy Mac Laren-Gomez, Secretary
Board of Directors
Palmdale Water District

Aleshire & Wynder LLP
District Legal Counsel

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Aleshire & Wynder LLP
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