

## PROPOSAL

**Title: WSAG17: Increasing Water Use Efficiency and Conservation by Upgrading Agricultural Water Meters to AMA<sup>®</sup> (Advanced Metering Analytics) Monitoring System for Moloa'a Irrigation Cooperative**

### A. SCOPE OF WORK:

#### A.1. Project Budget

Total project cost -	\$54,652.00
Grant Request -	\$26,936.00
Cash Match -	\$26,936.00

#### A.2. Background and Justification of Need

The Moloaa Irrigation Cooperative (MIC) is a not-for-profit public water system (PWS # 437) on the Island of Kauai, serving 63 agricultural parcels owned by a group of local, community-based agricultural producers. The total acreage served is 596 acres. The distribution system consists of approximately 2.5 miles of old plantation-era steel pipes, and has experienced significant "unaccounted-for water" due to leaks, water theft and metering error. Although the system is being slowly upgraded and the worst sections replaced as time passes, significant losses have continued to occur on and off customer premises. The system must currently rely on labor-intensive manual meter reading by a private contractor at a cost of \$650.00 per month, during which readings are frequently recorded inaccurately or missed completely due to accessibility issues.

Most of the system's agricultural meters are in the 1.5' to 2" size range, so undetected leaks can result in significant water loss within a short period of time. Approximately two-thirds of the farmers do not live on their properties, and some owners may not visit their farms every week if they are not harvesting. Some have orchards for which irrigation is controlled by timers, and if a timer fails water can run for several days. There are many instances in which farmers have had undetected leaks that were not discovered until the next month's meter reading, sometimes amounting to thousands of gallons in water waste. **If the system's operator and/or the individual owners had the ability to constantly monitor water use on each parcel, and be alerted to anomalies (leaks) daily and in real time, it would greatly increase water use efficiency, reduce demand on the system's sole groundwater source, and provide the system with a valuable tool for implementing conservation practices.**

Badger Meter Inc., a well known manufacturer of water metering technology, recently released a cellular based solution for water system management. At the heart of this solution is the BEACON AMA software suite (Advanced Metering Analytics), which provides a set of data tools for water systems, including a consumer website and a smartphone/tablet app that provides real-time information for system operators and customers.

BEACON is accessed through standard web browsers and requires only a login and password to access the information. There is no minimum or maximum number of users, and no licenses to purchase or maintain.

The system provides a comprehensive set of management tools for customers and operators:

#### CUSTOMER LEVEL

- **Leak Detected** – 24 hours of continuous flow at increments as low as 1/100th CF
- **Continuous Flow** – customers that are anticipated to have 24 hours of continuous flow but have exceeded a set threshold (high or low)
- **Backflow**
- **No Recent Flow** – can help to identify potential meter issues, water theft, etc.

#### OPERATOR LEVEL

- **System Water Usage** is a snapshot of water usage in the system. This can be used to compare today's usage to yesterday's water usage in graph and number formats. A built-in calendar is used to select the specific time period to view. Selections can include all the meters in the system or a specific user group.
- **Endpoint Health** identifies any ORION transmitter reporting an issue such as a cut cable or low battery alarm. The system will send an alert if the battery life is down to 10% or less to give the operator time to replace.
- **Top Accounts by Usage** – these are the top 25 users every week, and their movement in the ranking. For example, Customer A may have moved up 2 places from last week, Customer B moved down 1, etc.
- **Billing Reads** – This processes data captured by the system into a billing file that can be passed to the system's billing software. Dates for each reading are chosen by the operator, regardless of whether it is a weekend or holiday. This provides a consistent number of days for each billing period, an important feature when using a tiered rate structure.

Included with the BEACON system is EyeOnWater, a consumer web portal and smartphone/tablet app. The first thing a customer sees when logging in is the status of their account:

- Customers have the ability to receive leak alerts - email and/or text:
- Customers can see a user-defined graph of their water use patterns, with the ability to add overlays for temperature and precipitation.

This system would give Moloa's farmers a powerful tool for establishing conservation benchmarks. For example, knowing the number of gallons normally needed to water 135 trees during a period of dry weather might give them a better sense of whether they could reduce irrigation to, say, 50% during a period of wetter weather. If a farmer ordinarily uses 10,000 gallons per week and that number suddenly jumped to 15,000, he or she could immediately start looking for leaks. Although many of these tasks could be accomplished by taking constant readings from an analog meter, most people have neither the time nor ability to do so,

especially absentee farmers. Being able to log in remotely, or even dial up an app on a smart phone, puts the power of conservation literally in the palm of their hands.

**MIC members are actively engaged in local commerce, proactive about protecting and conserving natural resources, fully supportive of this effort, and anxious for this system to be implemented.**

**B. DESCRIPTION OF PROPOSED ACTIVITIES**

1. Document inventory of existing meters
2. Determine accessibility and suitability of meter installations for conversion
3. Solicit price quotes from meter vendors
4. Solicit price quotes from installation contractors
5. Purchase necessary hardware and software
6. Complete installation
7. Begin gathering conservation data for follow-up reporting

**C. LIST OF DELIVERABLES**

1. Initiate purchase and delivery of meters
2. Perform installation of meters
3. Perform follow-up monitoring and profiling of water use, demand and real or apparent water loss
4. Prepare and transmit quantified water savings figures to DLNR per terms of the RFP

**D. EXPERIENCE AND CAPABILITIES**

The MIC board has two certified water distribution operators and collectively over 50 years of experience operating the water system. MIC continues to meet the many challenges it has faced since being declared a Public Water System in 2015. Foremost, as agricultural producers, their water system is literally their living, and they appreciate and care for it accordingly. The cash match for this program represents a substantial expense for their limited budget, yet the board is unanimous in their support for pursuing it.

**E. PROPOSAL BUDGET FORM (see Attachment E)**

**WSAG17 - Proposal Budget****GRAND TOTAL (including match) \$54,652.00 (inclusive of GE tax)****Subtotal for labor \$20,280.00 (includes GE tax)****Subtotal for materials \$29,662 (includes GE tax)****Subtotal for other actions \$4,710 (includes GE tax)**

Supporting documents:

Badger ORION Cellular / BEACON meter reading solution BUDGETARY QUOTE

Updated 04/17/2017 by

**National Meter Automation****Seymour Resources quote for installation**

04/17/2017

Please round amounts to the nearest dollar.

<b>Budget Category</b>	<b>Proposed Grant Budget</b>	<b>Matching Cash</b>	<b>Total Budget</b>
Salary and wages	\$10,140	\$10,140	\$20,280.00
Materials and supplies	\$14,831	\$14,831	\$29,662.00
Travel			
Training	\$2355	\$2355	\$4710.00
Contracts			
Rentals			
Other			
<b>Total Cost</b>	\$26,936	\$26,936	\$54,652.00

The targeted percentage for indirect costs should not exceed 10% of total costs requested. If there are different indirect costs for different budget categories, please create different spreadsheets for each indirect cost rate.

**Compensation and Payment Schedule**

<b>#</b>	<b>Deliverable/Task/Activity</b>	<b>Grant Amount (\$)</b>	<b>Matching Cash (\$)</b>	<b>Total Amount (\$)</b>
1	Labor, installation of (26) new 2" meters	\$6,084	\$6,084	\$ 12,168
2	Labor, retrofit of (39) existing 1" and 1-1/2" meters	4,056	4,056	8,112
3	Materials, (26) new 2" meters	7,836	7,836	15,672
4	Materials, (1) new 4" meter	445	445	890
5	Materials, (1) new 6" meter	1,594	1,594	3,188
6	Materials, (39) retrofit registers for 1" and 1-1/2" meters	1,204	1,204	2,408
7	Materials, (67) Orion Cellular transmitters	3,752	3,752	7,504
8	Software licensing, setup and training	2,355	2,355	4,710
	GRAND TOTAL (could include rounding error)	\$27,326.00	\$ 27,326.00	\$54,652.00

Badger ORION Cellular / BEACON meter reading solution

Qty		Unit \$	Total \$
<b><u>I. One Time setup and training charges</u></b>			
1	Engagement Fee	\$ 3,750.00	\$ 3,750.00
	This is a one-time charge for setup and activation of the Customer's BEACON AMA online portfolio and initial licensing of the BEACON AMA Software		
1	Training - BEACON AMA Intro	\$ 540.00	\$ 540.00
1	Training - BEACON Data Exchange	\$ 420.00	\$ 420.00
	<b>SUBTOTAL:</b>		<b>\$ 4,710.00</b>

**II. Water Meters**

Bronze Positive Displacement & Turbo Meters w/HR-E LCD Encoder Register, US Gal

	1" Model 70 bronze w/bronze bottom	\$ 230.00	\$ -
	1-1/2" Bronze Model 120 w/test plug	\$ 423.25	\$ -
26	2" Bronze Model 170 w/test plug	\$ 602.75	\$ 15,671.50
1	4" T1000 Turbo Series meter w/test plug	\$ 890.00	\$ 890.00
1	6" T2000 Turbo Series meter w/test plug	\$ 3,187.50	\$ 3,187.50
	<b>SUBTOTAL:</b>		<b>\$ 19,749.00</b>

**III. Retrofit of Existing Badger Meter**

18	HR-E LCD High Resolution Encoder Register, Nicor connector, programmed for Badger 1" M70 meters	\$ 61.75	\$ 1,111.50
21	HR-E LCD High Resolution Encoder Register, Nicor connector, programmed for Badger 1-1/2" M120 meters	\$ 61.75	\$ 1,296.75
	<b>SUBTOTAL:</b>		<b>\$ 2,408.25</b>

**IV. ORION Cellular Transmitter**

67	ORION LTE Cellular transmitter, Nicor connector	\$ 112.00	\$ 7,504.00
	<b>SUBTOTAL:</b>		<b>\$ 7,504.00</b>

**V. Monthly Subscription fee, per transmitter**

67	Hourly data, once daily call-in	\$ 0.89	\$ 59.63
----	---------------------------------	---------	----------

**Software**

1	BEACON AMA software - District portfolio	included
1	EyeOnWater consumer web portal and smartphone app	included



Seymour Resources Hawaii, Inc.  
562 Papalani St.  
Kailua, HI 96734

April 17, 2017

## Proposal to Install the Beacon Components to each Meter Supplied by the Moloaa Irrigation Co-op

To: Louis Wooten

We are offering our services to install the components needed to operate the Badger Beacon system by the Moloaa Irrigation Co-op. The Co-op will supply all the needed components for the installation as specified by Badger.

Proposed Prices –

1. For all existing Badger Meters - \$185.00 per site
2. For all other meter types - \$435.00/site (includes replacing the meter with a meter assembly supplied by the Co-op.)
  - a. If the meter doesn't need replacing, and the Badger components are compatible, the charge will be \$185.00
3. \$15.00 per site for miscellaneous materials
4. Hawaii State GEUT on all items

Thanks

TRANSMITTAL and OFFER LETTER RFP WSAG17

Name of Organization: Moloa'a Irrigation Cooperative

Point of Contact: Louisa Wooton, Board of Directors Secretary

Phone: 808-828-0095

Email: moloairrigationcoop@gmail.com

Water Security Advisory Group
Department of Land and Natural Resources, Commission on Water Resource Management
Punchbowl Street, Room 227
Honolulu, Hawaii 96813

The undersigned has carefully read and understands the terms and conditions specified in RFP WSAG17, the Special Provisions attached hereto, and hereby submits the following offer to perform the work specified herein, all in accordance with the true intent and meaning thereof. The undersigned further understands and agrees that by submitting this offer, 1) he/she is declaring his/her offer is not in violation of Chapter 84, Hawaii Revised Statutes, concerning prohibited State contracts, and 2) he/she is certifying that the price submitted was independently arrived at without collusion.

A list of secured and required permits necessary to implement the project are hereto attached.

Proposal Title: Increasing Water Use Efficiency and Conservation by Upgrading Agricultural Water Meters to AMA® (Advanced Metering Analytics) Monitoring System for Moloa'a Irrigation Cooperative

Total Amount of Proposal: \$ 54,652.00

If awarded, the contract with the State would be made with the following entity (please use the exact legal name as registered with the Dept. of Commerce and Consumer Affairs):

Moloa'a Irrigation Cooperative

Legal name

P.O. Box 506

Anahola, HI 96703

Address (Contract and Billing Address must be the same)

State Tax ID No. (GE)

Federal Tax ID No.

M. Louisa Wooton April 19, 2017

Offeror Signature

Date

M. Louisa Wooton

Secretary Board of Directors

Print Name

Title

OFFER FORM OF-1
2017 IMPLEMENTATION OF WATER SECURITY PROJECTS AND PROGRAMS
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES
RFP-WSAG17

Procurement Officer
Department of Land and Natural Resources
State of Hawaii
Honolulu, Hawaii 96813

Dear Procurement Officer:

The undersigned has carefully read and understands the terms and conditions specified in the Specifications and Special Provisions; and hereby submits the following offer to perform the work specified herein, all in accordance with the true intent and meaning thereof. The undersigned further understands and agrees that by submitting this offer, 1) he/she is declaring his/her offer is not in violation of Chapter 84, Hawaii Revised Statutes, concerning prohibited State contracts, and 2) he/she is certifying that the price(s) submitted was (were) independently arrived at without collusion.

Offeror is: [ ] Sole Proprietor [ ] Partnership [ ] \*Corporation [ ] Joint Venture
[X] Other 501(c)(12) Non-profit irrigation cooperative

\*State of incorporation: \_\_\_\_\_

Hawaii General Excise Tax License I.D. No. [REDACTED]

Federal I.D. No. [REDACTED]

Payment address (other than street address below): P.O. Box 506
City, State, Zip Code: Anahola, HI 96703

Business address (street address): 4552 Kapuna Road
City, State, Zip Code: Kilauea, HI 96754

Respectfully submitted:

Date: April 19, 2017

(x) \_\_\_\_\_

Authorized (Original) Signature

Telephone No.: 808-828-0095

M.Louisa Wooton, Secretary Board of Directors

Fax No.: \_\_\_\_\_

Name and Title (Please Type or Print)

E-mail Address:
moloairrigationcoop@gmail.com

\*\* Moloa'a Irrigation Cooperative
Exact Legal Name of Company (Offeror)

\*\*If Offeror is a "dba" or a "division" of a corporation, furnish the exact legal name of the corporation under which the awarded contract will be executed.



OFFER FORM OF-2

Total contract cost for accomplishing the development and delivery of the services.

\$ 54,652.00

**Note: Pricing shall include labor, materials, supplies, all applicable taxes, and any other costs incurred to provide the specified services.**

I, M. Louisa Wooton, Board Secretary (Offeror), certify that at time of award the 1:1 matching fund requirement will be met for Conservation Water Meter Upgrade (project). The total amount of matching funds will be \$ 26,396.00

*M. Louisa Wooton* April 19, 2017  
Offeror Signature                      Date

M. Louisa Wooton, Secretary Board of Directors Moloa'a Irrigation Cooperative  
Print Name                                      Title