

CAMBRIA COMMUNITY SERVICES DISTRICT

TO: Board of Directors

AGENDA NO. **6.D.**

FROM: Matthew McElhenie, General Manager
Ray Dienzo, Utilities Department Manager/District Engineer

Meeting Date: August 10, 2023 Subject: Discussion and Consideration to Approve Procurement by Non-Competitive Proposal Pursuant to CCSD Policy 2135 and Select Badger as the Sole Source for Advanced Metering Infrastructure Upgrade

RECOMMENDATIONS:

Staff recommends that the Board of Directors approve proceeding with procurement by non-competitive proposals for a sole-source acquisition of Badger meter endpoints and software for upgrading District water meters to Advanced Metering Infrastructure (AMI) meters, pursuant to the CCSD Purchasing Policy 2135.

FISCAL IMPACT:

Upon approval, staff will purchase approximately 100 endpoints and begin the engagement and billing integration process with Badger. This will address some of the most problematic meters immediately. The cost for those items would be covered in the Water Department operating budget. At a later date, project phasing and payment options will be brought before the Board for approval; the total cost of the project is unknown at this time.

DISCUSSION:

The CCSD's Purchasing Policy 2135 provides for procurement by non-competitive proposals when an item is only available from a single source. Staff is requesting the Board authorize proceeding with procurement by a non-competitive bid (sole source) based upon the following:

All the water meters installed in the CCSD's water distribution system are Badger meters, many of which have been in service for 15+ years. Each water meter has an electronic transmitter or endpoint attached. These existing endpoints have reached the end of their useful life, with over half no longer transmitting, necessitating a full manual read of the meter. The District needs to upgrade all the water meters in the water system to AMI and the software for collecting the water-use data.

The existing Badger meters can be upgraded to AMI-capable meters by replacing the current endpoint with one capable of transmitting water-use data over the cellular network, thereby eliminating the need to replace the whole meter. Utilizing this endpoint replacement process rather than replacing the meter will create significant savings estimated at \$500K. The need for sole source procurement is based on compatibility: the Badger AMI endpoints are the only endpoints compatible with the existing water meters and the accompanying Badger software upgrade. 10% of meters must be replaced to maintain compatibility across the entire water system. Those will be replaced with meters sole-sourced from Badger.

Another advantage of the Badger Orion AMI system is its comparability with 100% of the existing equipment. This eliminates the need for replacing meter bodies that are operating accurately, as the system can be easily retrofitted onto current meter bodies. Unlike other alternatives, the

Badger Orion system utilizes a cellular network, eliminating the need to construct and maintain a fixed communication network throughout the community and providing immediate and long-term cost savings to the District.

Primary advantages of the Badger Orion AMI system include improved timeliness and consistency in meter readings, providing customers with real-time water usage data, alerts for high consumption thresholds, and rapid leak detection and notification to reduce water losses on the customers' side, therefore saving customers money in a leak event. The system will also provide tampering alerts, enhance distribution system operations, and improve demand projections for future water shortage demand assessments.

Though the procurement is proposed to be sole-sourced, the installation contractor will be solicited through a public works request for proposal (RFP) process.

Staff presented this approach to the Resources and Infrastructure Committee at their July 10th meeting. The Committee unanimously approved this recommendation.

Staff recommends that the Board of Directors approve proceeding with procurement by non-competitive proposals for a sole-source acquisition of Badger meter endpoints and software for upgrading District water meters to Advanced Metering Infrastructure (AMI) meters, pursuant to the CCSD Purchasing Policy 2135.

DESCRIPTION

ORION[®] Cellular water endpoints are innovative, two-way endpoints for smart water applications. The endpoints utilize existing IoT (Internet of Things) cellular infrastructure to efficiently and securely deliver meter reading data to the utility in a Network as a Service (NaaS) approach. Leveraging existing cellular infrastructure, the NaaS solution offers all the performance benefits of AMI, while eliminating network-related maintenance and technology concerns and enhancing deployment flexibility.

Cellular endpoints are members of the time-tested ORION family of products from Badger Meter, designed for maximum flexibility. Since 2002, the ORION product family has provided comprehensive Advanced Metering Analytics (AMA) for interval meter reading and data capture using both one-way and two-way communications.

FUNCTIONALITY

Operation: ORION Cellular water endpoints communicate with the encoder and capture 15-minute interval read data and meter status information. The endpoints then automatically broadcast the information, including endpoint status information, via the cellular network to BEACON[®] Software as a Service (SaaS). ORION NaaS is powered by the proven ORION system for interval data capture and two-way communication. The solution employs cellular endpoints which, as they leverage the public cellular network and require no proprietary gateways to operate, dramatically reduce infrastructure requirements compared to a traditional fixed network. This speeds installations and simplifies expansion as a system evolves.

The endpoints are designed to call in four times each workday and feature a configurable schedule that enables utility customers to select call-in times that best support their processes.

Activation: ORION Cellular water endpoints are shipped in an inactive, non-transmitting state. The Badger Meter IR Communication Device can be used to activate the endpoints and verify the encoder connection. Successful endpoint function can be confirmed through a web app demonstrating that communication has been verified to both the encoder and the network.

Alternatively, the endpoints offer a Smart Activation feature. After installation, the endpoints begin broadcasting data when the encoder senses the first usage of water. No field programming or special tools are required.

Broadcast Mode: ORION Cellular water endpoints broadcast fixed network reading data through the secure cellular network within the service area.

Specific configurations also transmit a radio frequency (RF) message to facilitate troubleshooting in the field. See "[Configurations](#)" on page 2.

Data Storage: The endpoints store 42 days of 15-minute data.



ORION Cellular C endpoint (pictured)

Output Message: ORION Cellular water endpoints broadcast a unique serial number, meter reading data, and applicable status indicators. As an advanced data security measure, each message is securely transported to BEACON SaaS only via private network and never over the public internet.

APPLICATION

Configurations: ORION Cellular water endpoints are multi-purpose endpoints that can be deployed in indoor, outdoor and pit (non-metal pit lid) applications. The electronics and battery assembly are fully encapsulated in epoxy for environmental integrity. The endpoint is available with a connector assembly for ease of installation.

Meter Compatibility: When attached to a Badger Meter High Resolution Encoder, the ORION Cellular water endpoint is compatible with all current Badger Meter Recordall[®] Disc, Turbo Series, Compound Series, Combo Series and Fire Service meters and assemblies, and with E-Series G2[®] Ultrasonic, E-Series[®] Ultrasonic, E-Series[®] Ultrasonic Plus, and ModMAG[®] electromagnetic flow meters.

Encoder Compatibility: The ORION Cellular water endpoint is suitable for use with a Badger Meter High Resolution Encoder as well as the following Badger Meter approved three-wire encoder registers that have a manufacture date within 10 years of the current date as long as the encoder has three wires connected to it and is programmed into the three-wire output mode for AMR/AMI: Honeywell[®] (Elster) ScanCoder[®] encoder with Sensus[®] protocol module and evoQ4 meter (encoder output); Master Meter[®] Octave[®] Ultrasonic meter encoder output; Metron-Farnier Hawkeye; Mueller Systems 420 Solid State Register (SSR) LCD; Neptune[®] ProRead, E-Coder[®], ARB-V[®], and ProCoder; and Sensus iPerl[®].

SPECIFICATIONS

Dimensions	5.125 in. (130 mm) (H)
	1.75 in. (44 mm) Diameter at top 2.625 in. (W) x 2.875 in. (D) at base (67 mm (W) x 73 mm (D) at base)
Broadcast Network	LTE-M cellular network (primary communication technology)
	NB-IoT (secondary communication technology for certain variants)
RF Message for Troubleshooting	Where available (see table below) frequency is FCC-regulated 902...928 MHz frequency hopping modulation
Operating Temperature Range	• Storage, Meter Reading and RF Message (for troubleshooting) -40...60° C (-40...140° F)
	• Cellular Communications -20...60° C (-4...140° F)
Humidity	0%...100% condensing
Battery	One (1) lithium thionyl chloride D cell (nonreplaceable)

Construction: All ORION Cellular water endpoints are housed in an engineered polymer enclosure with an ORION RF board, battery and antenna. For long-term performance, the enclosure is fully potted to withstand harsh environments and to protect the electronics in flooded or submerged pit applications.

Wire Connections: ORION Cellular water endpoints are available with in-line connectors (Twist Tight® or Nicor®) for easy installation and connection to compatible encoders/meters. The endpoints are also available with flying leads for field splice connections. Other wire connection configurations may be available upon request.

License Requirements: ORION Cellular water endpoints comply with Part 15, Part 22, Part 24, and Part 27 of the FCC Rules. No license is required by the utility to operate an ORION meter reading system. This device complies with Industry Canada license-exempt RSS standard(s).

Transportation: **WARNING:** The operation of transmitters and receivers on airlines is strictly prohibited by the Federal Aviation Administration. As such, the shipping of radios and endpoints via air is prohibited. Please follow all Badger Meter return and/or shipping procedures to prevent exposure to liability.

Warning: To reduce the possibility of electrical fire and shock hazards, never connect the cable from the endpoint to any electrical supply source. The endpoint cable provides SELV low voltage limited energy power to the load and should only be connected to passive elements of a water meter register.

Caution: Endpoint batteries are *not* replaceable. Users should make no attempt to replace the batteries. Changes or modifications to the equipment that are not expressly approved by Badger Meter could void the user's authority to operate the equipment.

FEATURES

Smart City Ready	Future-proof technology
Communication Type	Two-way
Application Type	Control/Monitor
Endpoint Communication	Configurable call-in schedule, up to four times each workday
Reading Interval Type	15-minute
Encoder Compatibility	Absolute
Fixed Network Reading	✓
Cut-Wire Indication	✓
Encoder Error	✓
Low Battery Indication	✓
Remote Clock Synchronization	✓
Firmware Upgrades	✓

CONFIGURATIONS

Endpoint	Notes
ORION Cellular C	Includes RF and IR messages for troubleshooting
ORION Cellular CS	Secondary carrier; includes RF and IR messages for troubleshooting
ORION Cellular LTE-M	Includes RF and IR messages for troubleshooting
ORION Cellular LTE-MS	Secondary carrier; includes RF and IR messages for troubleshooting
ORION Cellular HLA	Includes IR message for troubleshooting

NOTE: For the ORION Cellular LTE-MP endpoint, see the *ORION Cellular LTE-MP Endpoint product data sheet*, available at www.badgermeter.com.

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Badger Meter

BEACON® Advanced Metering Analytics EyeOnWater® Consumer Engagement



Direct Water Consumption Data

Gives utility customers direct access to their water consumption data, allowing them to easily view, understand and manage their water usage.

Improved Customer Service

Improved customer service and reduced calls to the utility.

Promotes Water Conservation

Promotes changes in behavior related to water conservation.

EyeOnWater® is a consumer engagement application that goes beyond traditional monthly statements to connect utilities and their customers like never before. Available exclusively through BEACON® AMA, EyeOnWater enables utility customers to view and understand their usage profile through easy-to-understand consumption graphs and provides a simple method to establish alerts to better manage their water use.

Literally putting water usage data in the palm of consumers' hands, EyeOnWater mobile apps bring the power of the online portal to your customer's iOS device or Android smartphone.

Features:

- Secure, cloud-based – ISO 27001 certified and SOC 2 examined for security, availability and confidentiality
- Hourly, daily, monthly, and yearly data and charts
- Temperature and precipitation overlays
- Week-over-week consumption comparisons
- Configurable leak alerts by email or SMS text
- Web-based consumer portal, plus Android and iOS mobile apps

**Better information. Better utility management.
Clearly Better.**

Making Water Visible®

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Badger Meter

BEACON® Advanced Metering Analytics

With ORION® Network as a Service (NaaS)

OVERVIEW

The BEACON® Advanced Metering Analytics (AMA) Solution with ORION® Network as a Service (NaaS) presents a simple, yet powerful solution to bring a new level of utility optimizing information to light.

The solution combines our intuitive BEACON AMA Software as a Service (SaaS) with a NaaS approach using proven ORION Cellular endpoints to deliver greater visibility and control over utility management.

Built-in infrastructure management services and a system design that keeps you in step with technology advancements, allows you to do what you do best—manage your water utility. Plus, built-in consumer engagement tools help enhance customer service, increase satisfaction and reduce costs.

SOFTWARE APPLICATIONS

BEACON Advanced Metering Analytics (AMA)

With tools beyond meter reading and network management, BEACON AMA software offers targeted Advanced Metering Analytics. BEACON AMA software puts interval meter data to work to increase efficiency in day-to-day utility operations and address demands for actionable intelligence.

- **Problem solver** – User intuitive data tools place the power of water consumption data at your fingertips, allowing you to rapidly respond to customer inquiries and quickly resolve—and even eliminate—many billing issues.
- **Customized design** – A customizable dashboard delivers information configured to user security access level in a format matched to the utility’s individual requirements, providing data management integrity, security and control.
- **Works with you** – Integration with utility systems—billing, work order, inventory, Customer Relationship Management (CRM) and Geographic Information Systems (GIS)—streamlines and improves utility operations without disrupting the current utility billing interface file transfer process.
- **Find out fast** – Alert conditions can be set to monitor and notify users of system exceptions, including continuous flow, for faster leak detection.
- **Innovation at your service** – Secure, hosted platform with automatic software upgrades ensures the latest technology and features are always available.

EyeOnWater®

The BEACON AMA software suite includes informative consumer outreach tools to improve customer service consisting of the EyeOnWater consumer engagement website, smartphone mobile apps, and email or SMS text alerts, providing easy access to personal consumption data and alerts to potential leaks. With these tools, water consumers are able to view their usage activity, and gain greater understanding and control of what they use and the value you provide.

BEA-DS-00554-EN-10 (August 2020)



HARDWARE

ORION NaaS is powered by the proven ORION system for interval data capture and two-way communication. The solution employs cellular endpoints which, as they leverage the public cellular network and require no proprietary gateways to operate, dramatically reduce infrastructure requirements compared to a traditional fixed network. This speeds installations and simplifies expansion as a system evolves.

- **High resolution data** – ORION Cellular endpoints are programmed to automatically broadcast 15-minute meter reading and event data to the BEACON software up to four (4) times per day. The high resolution data helps identify potential customer-side leaks and other anomalies in water use, and provides the utility with a potent tool to enhance its customer service.
- **Two-way communication** – BEACON AMA software communicates with ORION Cellular endpoints to accomplish a number of system tasks, including requesting additional information from the endpoint and synchronizing the internal endpoint clock. If needed, the ORION two-way system architecture sends upgrades to the endpoint firmware over the air via the network, utilizing the powerful BEACON AMA software suite.
- **Data integrity** – Each message from the ORION Cellular endpoint is securely transported to the BEACON AMA software only via private network and never over the public internet.

SECURITY

BEACON AMA is ISO 27001 certified and SOC 2 examined for security, availability and confidentiality.

TECHNICAL SUPPORT AND TRAINING

Configured for the utility, safe and secure BEACON AMA SaaS provides utilities with regular software updates, long-term support and maintenance. Comprehensive BEACON AMA training courses are available for online or on-site delivery at the time of system deployment. To maintain best practices, a library of online resources and options for group web-based training and support are also available. Once deployed, our technical support specialists can be contacted by phone, email and web to provide ongoing, customer-friendly support. Customized one-on-one training is available (fee applies) to further enhance user expertise.

Additionally, Badger Meter offers extended customized training to further enhance user expertise.

TECHNICAL REQUIREMENTS

BEACON AMA

Developed as a hosted software platform, BEACON AMA is a cloud-based application accessed through a standard web browser. Internet access is required. User logins provide secure access.

BEACON AMA supported web browsers include the latest and next previous major releases of Google® Chrome, Microsoft® Edge, Mozilla® Firefox®, Microsoft® Internet Explorer® (IE 11 only); and Apple® Safari®.

EyeOnWater Consumer Engagement

The EyeOnWater consumer engagement website is a cloud-based application accessed through a standard web browser. Internet access is required. Water consumer user logins provide secure access to their information.

Supported web browsers include the latest and next previous major releases of Google® Chrome, Microsoft® Edge, Mozilla® Firefox®, Microsoft® Internet Explorer® (IE 11 only); and Apple® Safari®.

EyeOnWater smartphone applications require Android 6.0 or iOS 9.1 or later, and can be downloaded from Google Play or the Apple Store.

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www.badgermeter.com



Quotation

940 Riverside Pkwy #30
 West Sacramento, CA 95605
 PHONE: 877-348-0700
 FAX: 707-575-0700

CREATED DATE: June 28, 2023
 QUOTED BY: Kathy Richards
 REQUESTED BY: Ray Dienzo
 PHONE: 805-927-6119
 EMAIL: rdienzo@camabriacsdsd.org

BILL TO: Cambria CSD
 PO box 65
 Cambria, CA 93428

SHIP TO: Cambria CSD
 5500 Heath Ln.
 Cambria, CA 93428

Subject to review: 12/31/2023

SALESPERSON	PROPOSAL SUBJECT	SHIPPING TERMS	PAYMENT TERMS
Kathy Richards	ORION upgrade	Prepay/No Charge For Shipments > \$35,000 FCA Factory/Warehouse	Net 30 Days
QTY	PRODUCT DESCRIPTION	UNIT PRICE	AMOUNT
2200	HR-E LCD encoder register, CF, 5' Twist Tight connector with cable shield, ORION Cell-C Cellular endpoint, 8" Twist Tight connector with cable shield, thru lid installation kit	\$ 197.00	\$ 433,400.00
1800	HR-E LCD encoder register, CF, 5' Twist Tight connector with cable shield, ORION Cell-CS Cellular endpoint, 8" Twist Tight connector with cable shield, thru lid installation kit	\$ 211.50	\$ 380,700.00
400	1" Model 55 bronze disc meter, brz bottom, meter body only	\$ 171.00	\$ 68,400.00
65	3"x17" E-Series G2 Ultrasonic commercial meter, lead free bronze w/test plug, HR-E LCD encoder register, CF, 5' Twist Tight connector with cable shield, ORION Cell-C Cellular endpoint, 8" Twist Tight connector with cable shield, thru lid installation kit	\$ 2,318.00	\$ 150,670.00
1	#68468-001 HR-E LCD programming kit, USB	\$ 200.00	\$ 200.00
3	#68891-001 IR Communication Device	\$ 118.00	\$ 354.00
1	Engagement Fee	\$ 5,675.00	\$ 5,675.00
	One-time fee includes the setup and activation of the District's BEACON AMA portfolio		
1	#66220-201, Billing Integration	\$ 5,880.00	\$ 5,880.00
	One-time fee for work performed by Badger Meter to integrate the District's Billing System with BEACON. This includes the evaluation of the import file into BEACON as well as the configuration and testing of a billing read file from the BEACON environment.		
	Fees charge to the District by its utility billing vendor for an interface file are separate and are the responsibility of the District.		
1	Onsite Training - Getting Started with BEACON AMA #69328-202	\$ 2,625.00	\$ 2,625.00
SUBTOTAL			\$ 1,047,904.00
SALES TAX			\$ 74,944.99
FREIGHT			
TOTAL			\$ 1,122,848.99

Sales Tax: 7.25% San Luis Obispo County
 *sales tax charged at rate in effect at time of order, point of delivery

Est. Lead Time: To be provided at time of order.



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SALESPERSON	PROPOSAL SUBJECT	SHIPPING TERMS	PAYMENT TERMS
Kathy Richards	ORION upgrade	Prepay/No Charge For Shipments > \$35,000 FCA Factory/Warehouse	Net 30 Days
QTY	PRODUCT DESCRIPTION	UNIT PRICE	AMOUNT
	Software:		
1	BEACON AMA Advanced Metering Analytics Software suite Internet access is required. User logins provide secure access.	included	
1	EyeOnWater consumer engagement portal and smartphone apps	included	
	#68886-104 Subscription Fee Service Units		
48780	Year 1 quantity Based on 4,065 services x 12 months Subscription Fee includes:	\$ 0.83	\$ 40,487.40
	- BEACON and EyeOnWater licenses and software updates		
	- Cellular communication		
	- Cloud hosting and data storage		
	- Data Security		
	- Field and Technical Support		
	- Network up-time guarantees		

Notes and Assumptions:

If applicable, sales tax and freight, if included on the proposal, is an estimate and will be recalculated based on rates and tax status in effect at time of invoicing.

Actual lead time to be provided at time of order

To aid in processing your order, please include the Quote number on the PO that is submitted for this proposal

Badger Meter provides certification files to help manage meter and endpoint inventory and to maintain meter accuracy data. The standard method of delivery for this information is via electronic mail. Any deviations from our standard format, or any custom file formats, will be considered on a time and material basis.

Due to continuous improvements and redesign of Badger Meter products and technology solutions, Badger Meter reserves the right to provide our newest product solutions as an alternative to the proposed products provided they are in conformance with the requirements of the specifications and do not exceed the prices quoted.

THANK YOU FOR YOUR BUSINESS!!

Estimated ship dates subject to change based upon component availability, as a result of global supply chain constraints or credit review.

This acknowledgement is made subject to the terms and conditions found on our web-site: <https://www.badgermeter.com/terms-and-conditions>

Terms and conditions related to service units, training, and professional services can be found here:

<https://badgermeter.com/service-units-terms-and-conditions>

BADGER METER ADVANCED METERING INFRASTRUCTURE UPGRADE

Cambria Community Services District





Year 1 Cost Overview

Endpoints	400 Residential Meter Bodies	65 Commercial Meter Bodies	One-Time Set-Up, Installation & Training	Software/ Customer Portal	Total
\$814,100	\$68,400	\$150,670	\$48,734*	\$40,487	\$986,455

*Includes staff's rough-estimate installation charges. Requests for proposal will follow Board approval.

10-Year Cost Overview



Year	400 Meter Bodies Per Year	Estimated Installation	Software/ Customer Portal	Total
1				\$986,455
2	\$71,820	\$35,700	\$42,525	\$107,520
3	\$75,411	\$37,485	\$44,651	\$112,896
4	\$79,182	\$39,359	\$46,884	\$118,541
5	\$83,141	\$41,327	\$49,228	\$124,468
6	\$87,298	\$43,394	\$51,689	\$130,691
7	\$91,663	\$45,563	\$54,274	\$137,226
8	\$96,246	\$47,841	\$56,988	\$144,087
9	\$101,058	\$50,233	\$59,837	\$151,291
10	\$106,111	\$52,745	\$62,829	\$158,856

Notes: (1) All costs are adjusted by an estimated 5% cost increase each year.

(2) Costs include staff-estimated installation – request for proposals to follow Board approval.

Benefits



- BEACON Advanced Metering Analytics (AMA) provides utilities companies and their customers direct access to water consumption data, with easy-to-understand and easy-to-manage settings.
- BEACON AMA software puts interval meter data to work to increase efficiency in day-to-day utility operations and address demands for actionable intelligence.
- Alert conditions can be set to monitor and notify users of system exceptions, including continuous flow, for faster leak detection

More Benefits



- Allows for controlled replacement of bodies with installation beginning at failed locations.
- Meets regulatory requirements for bench-testing or replacement of 10% of meters each year.