ITEM #:	**38**
DATE:	**03-11-25**
DEPT:	**ELEC**

COUNCIL ACTION FORM

SUBJECT: **ADVANCED ELECTRIC METERING INFRASTRUCTURE (AMI) SYSTEM FOR THE CITY OF AMES**

BACKGROUND:

The electric meters currently used by Electric Services are digital meters that display the total amount of energy used by each customer over a given time period. These meters require a staff person to travel within the vicinity of the meter on a monthly basis to collect the energy use data. The Electric customer's bill is then determined based on the monthly amount of energy used. The meters in use currently require field reads to occur for account starts/stops. More advanced functions such as technical studies or sophisticated rate designs cannot be undertaken with the existing meters.

With a more advanced metering system, significant improvements can be made to facilitate system outage notifications, mid-month meter reads, time-of-use rates, demand side management improvements, feeder loading studies and remote connects/disconnects. Additionally, due to the growing energy demand by electric customers and recent targets that have been initiated in the Climate Action Plan, a need for more real-time metering of energy usage is warranted. This functionality is referred to as Advanced Metering Infrastructure (AMI). An AMI system allows for more real time and granular metering of electricity use and provides two-way communication between the utility and the customer.

AMI CONSULTANT AND RFP PREPARATION:

On September 12, 2023, City Council awarded a contract to Power System Engineering (PSE), of Madison, WI, as the AMI consultant for the City's Electric Utility. PSE worked with staff to create a cost analysis, create a business plan for phasing and deployment, create technical specifications, and identify key vendors for a subsequent Request for Proposal, which is the subject of this Council action.

PSE identified two required systems to specify in the Request for Proposal:

1. AMI System - the main data collection system. The AMI system is a 450 MHz licensed frequency that will remotely read all electric meters and water meters (in the future) locally to Data Collection Units (DCUs) and then use cellular technology to send the data from the DCUs to a secure cloud-based server.

2. Meter Data Management System (MDMS) - the central data hub of the entire system. The MDMS takes in the large amount of data collected from the systems, stores it, and interconnects to all the other systems that can use this data, including the billing system, Outage Management System (OMS), the Customer Portal, Demand Response system, Engineering analytic software, and the Distributed Energy Resource Management System (DERMS).

Three optional items were identified for inclusion in the Request for Proposal:

1. Meter Change Out - the installation of all the meters within the City. The intent is for City staff to

install meters. However, given the number of meters within the City, it would be good to review the cost for a firm to install the meters rather than City staff.

2. Distributed Energy Resource Management System - a software platform that manages and optimizes the use of distributed energy resources (DERs) in an electrical grid. DERs include solar panels, wind turbines, battery storage and electric vehicles. It also contains Demand Response programs to help curb peak demands such as the Prime Time Power air conditioner load program.

3. Customer Portal - this software will enable customers to link to their billing data, power usage on a daily, weekly, and monthly basis, outage information link, and many other Customer Service processes. While it will be necessary to procure this software to utilize Time of Use rates, it is not an immediate requirement. It is important to gather information with the RFP to evaluate.

AMI FOR WATER UTILITY:

Water meter reads are currently obtained through an Advanced Meter Reading (AMR) system using a handheld reader within 50-100 feet of the meter as the meter reader walks by. As part of the AMI system, water meter reads will be downloaded into the MDMS and uploaded to the Utility Billing system.

As the Water Department installs AMI modules on a regular, routine basis, those reads will be automatically collected by the AMI system, negating the need to roll a vehicle to obtain reads. Also, the AMI system allows for service disconnect/reconnect remotely on the electric side. This process currently requires two staff trips: one to disconnect and another to reconnect.

RFP PROCESS:

On April 5, 2024, the City issued a Request for Proposals (RFP) through AmesBids, the City's electronic bidding system. On June 11, 2024, a total of 15 proposals were received for the various features of the AMI system.

An evaluation team was formed from staff from Electric Services, Water & Pollution Control, Customer Service, and Information Technology. Criteria to be evaluated included: read rate and coverage of the service territory, integration fit and approach with existing and future systems, vendor experience, outage and restore reporting and capability, ability of future maintenance and services for the life of the project, and cost.

The evaluated costs listed include the cost of the equipment, installation, and any recurring fees over the course of projected 15 years of ownership.

The first criterion to evaluate was the AMI system itself.
(Note: Some of these bids are Electric only, or water only)

FIRM	RANK	COST
Aclara Technologies LLC Shelton, Connecticut	1	$ 7,003,000

Sensus St. Albans, Missouri	2	$ 8,504,000
Itron Park Ridge, New Jersey	3	$ 7,195,000
Eaton Minneapolis, Minnesota	4	$ 9,763,000
Open Access Technology International Inc. Bloomington, Minnesota	5	$ 6,019,000
WESCO Distribution (Honeywell) Des Moines, Iowa	6	$ 8,445,000
Tantalus Systems, Inc. Raleigh, North Carolina	7	$ 7,632,000
Landis + Gyr Alpharetta, Georgia	8	$ 7,534,000
Vision Metering LLC York, South Carolina	9	$ 5,996,000
Badger Meter, Inc. Milwaukee, Wisconsin	10	$ 3,573,000

The City evaluated an on-premises solution as well as a secure cloud-based Software-as-a-Service (Saas) model. **It was determined that the Saas option is preferred because it provides a more secure overall system in that security patches and updates are maintained by the vendor, they offer fail-over services in the event of server issues, and they have agreed to up-time rates at 99.5% which would be almost impossible for an on-premise solution to achieve without dedicating full-time IT personal to maintain the onsite software. The cloud-based service also proved to be a lower cost than the on-premises solution.**

Next, the **Meter Data Management System** (MDMS) was reviewed and evaluated.

FIRM	RANK	COST
Aclara Technologies LLC Shelton, Connecticut	1	$0 (Included in the AMI system)
Parsons Inc. Shreveport, Louisiana	2	$2,537,000
Itron Park Ridge, New Jersey	3	$1,640,000
Open Access Technology International Inc. Bloomington, Minnesota	4	$180,000
Vision Metering LLC York, South Carolina	5	$770,000

Utilismart London, Ontario, Canada	6	$1,268,000
Sensus St. Albans, Missouri	7	$2,544,000
Tantalus Systems, Inc. Raleigh, North Carolina	8	$2,659,000
WESCO Distribution (Honeywell) Des Moines, Iowa	9	$758,000
N. Harris Computer Corp Ottawa, Ontario, Canada	10	$2,312,000
SATEC Inc. Union, New Jersey	11	$4,820,000

Aclara was the highest-ranked proposal for the MDMS portion of the project. This ranking was independent of the ranking for the AMI system itself. An additional benefit of obtaining the MDMS from Aclara is that the system is already included as part of the AMI system and there is no additional cost for the MDMS.

Next, the **Meter Change Out** option was evaluated.

FIRM	RANK	COST
Aclara Technologies LLC Shelton, Connecticut	1	$1,787,000
Eaton Minneapolis, Minnesota	2	$2,048,000
Open Access Technology International Inc. Bloomington, Minnesota	3	$2,598,000
Tantalus Systems, Inc. Raleigh, North Carolina	4	$2,283,000
WESCO Distribution (Honeywell) Des Moines, Iowa	5	$4,075,000
Sensus St. Albans, Missouri	6	$4,018,000
Itron Park Ridge, New Jersey	7	$2,925,000
Vision Metering LLC York, South Carolina	8	$2,200,000
Texas Meter and Device Waco, Texas	9	$3,627,000

The Meter Change Out is the cost required for the vender to replace the current customer meters with the new AMI meters. Initially, City staff had planned for the AMI implementation and performing all

the meter change outs internally. **During the evaluation, it was determined it would take a <u>minimum</u> of 7-10 years for City staff to complete the meter exchanges.** To get the best return on investment, it was determined the system needed to start producing value as early as possible and, therefore, meter change outs should be completed by the vendor to shorten the implementation to less than 24 months.

The evaluation team then looked at **<u>Distributed Energy Resource Management System</u>** (DERMS) option.

FIRM	RANK	COST
Eaton Minneapolis, Minnesota	1	$53,000
Parsons Inc. Shreveport, Louisiana	2	$899,000
Open Access Technology International Inc. Bloomington, Minnesota	3	$529,000
WESCO Distribution (Honeywell) Des Moines, Iowa	4	$211,000

During the evaluation, it was determined it would be in the best interest of the City if the DERMS was evaluated as a standalone cost in a future bid process. The City may receive a wider response instead of having to be a part of an overall bid. Most bidders that didn't offer a DERMS solution referenced that they are compatible with many of the DERMS vendors.

Lastly, the **<u>Customer Portal</u>** option was evaluated.

FIRM	RANK	COST (over 20 year life)
Aclara Technologies LLC Shelton, Connecticut	1	$1,338,000
Eaton Minneapolis, Minnesota	2	$1,680,000
Tantalus Systems, Inc. Raleigh, North Carolina	3	$1,114,000
WESCO Distribution (Honeywell) Des Moines, Iowa	4	$1,338,000
Vision Metering LLC York, South Carolina	Non-Responsive	$0.00
Open Access Technology International Inc. Bloomington, Minnesota	Non-Responsive	$0.00

The customer portal is the platform where utility customers will have the ability to access data specific to their meter, make payments, and communicate with the utility.

EVALUATION TEAM'S RECOMMENDATION:

After an extensive evaluation, the team determined that Aclara Technologies, of Shelton, Connecticut, best met the requirements of the RFP. Aclara provides the most complete turn-key system at a competitive price when all categories were evaluated together as a system. **Therefore, the City began negotiations with Aclara. These negotiations provided the opportunity to discuss details of the project giving Aclara the ability to provide more specific pricing. The attached pricing sheet lists more defined pricing that ended up less than the overall proposed amounts.**

As the final scope of work and cost began to emerge through negotiations, Water & Pollution Control indicated they would not be participating in the complete exchange of water modules due to cost. Bids for the Water Pollution Control Nutrient Reduction Facility Modifications capital project came in over budget and funding for this metering project was no longer available. Aclara indicated that their pricing was based on quantities from both Electric and Water. Because the awarded quantity would be essentially cut in half, pricing would need to increase. The cost per electric meter would increase by 4%, adding approximately $200,000 to the project total.

Water indicated that their intent was to only order and install between 1200-1800 water modules per year. Aclara was not willing to hold pricing for an extended amount of time because there was no guarantee of large quantity orders. Due to the slower implementation of the water modules, there will be a 5% increase in cost per water module each year. Cost per water module for 2025 is $120 each.

After further discussion by City staff, it remains that Aclara Technologies, of Shelton, Connecticut, is the firm that best serves the interests of the City.

NEXT STEPS:

The next step will be the completion of a propagation study to determine the exact quantities of DCUs (Data Collection Units) needed to achieve the requirement of 99.5% read rates and to be no more than 30% loaded. This will allow for future growth and allow for enough redundancy to maintain the 99.5% read rate accuracy in the event not all DCUs are working.

There are also large areas where customers are served by the City water utility, but not the City electric utility. These locations will be determined in the propagation study and provide areas where an additional DCU will need to be installed once these water meters are changed to AMI in the future. The costs in the pricing attachment are an estimate given the number of meters, locations of those meters, and topography of Ames. **Although a final cost cannot be determined until the actual testing is conducted, staff has already worked with Aclara to obtain a reasonable confidence for the current dollar amount shown in the pricing attachment.**

Funding for the water modules will come from the Water Meter operating budget. The current year budget includes $502,240 to purchase meters and meter parts. Year-to-date expenses total $82,231 with additional active orders of $146,486, leaving an unobligated total of $273,523 available. Staff anticipates purchasing up to 1,200 of the Aclara Meter Transmission Units (MTUs) at a cost of $120 each, **for a total of $144,000**. A small order for miscellaneous brass fittings may be needed before the end of the fiscal year but is not anticipated to exceed $15,000. Therefore, there is adequate funding already authorized for the water meter portion of the contract.

Funding for the electric meters will come from the Capital Improvements Plan and the annual operating budget. The Capital Improvements Plan has the following funds for AMI:

FY 2024/25	FY 2025/26	FY 2026/27	FY 2027/28
$1,380,060	$2,000,000	$2,000,000	$2,000,000

The attached Pricing Schedule document lists the detail costs for each item purchased across three phases.

Phase 1

A pilot program will be performed during FY 2025/26 that will cost $861,889.91, inclusive of taxes. The pilot will ensure the system is functioning as required and provide time for needed training of City staff. Culmination of Phase 1 will result in a successful ISAT (Initial System Acceptance Test). Funding for Phase 1 will come from both Electric's AMI CIP, $717,889.91, and WPC's Meter O & M budget, $144,000. Funds from both Departments are available in the FY 2024/25 budget.

Phase 2

Beginning in FY 2025/26, a majority of equipment purchases will be performed, primarily meters, as well all meter change outs in FY 2026/27 and FY 2027/28 for a cost of $6,806,403.98 including taxes. The meter changeouts will begin following completion of Phase 1. Electric's portion of the cost is $6,756,225.59 and WPC is $50,178.26. **Funding by Electric for its share will require Council approval to advance CIP funds from FY 2026/27 and FY 2027/28 forward into FY 2025/26, which totals $6,662,170.09.** The shortfall of $95,000 will come from the Electric CIP project for EV Infrastructure which has a current balance in FY 2024/25 of $461,611.

Advancing all of the funding for Phase 2 of the project into FY 2025/26 provides several advantages: 1) it reduces the exposure of future purchases to increased costs, particularly since the meters contain components assembled internationally that may be subject to tariffs, 2) the overall cost for the meters is anticipated to be the best possible pricing, and 3) the vendor will offer a 48-month warranty as opposed to the initially proposed 18-month warranty. The Electric Fund available balance contains sufficient funding to accomplish this purchase in one year as opposed to spreading the purchases over several years.

Phase 3

The Electric Utility currently uses an antiquated system to perform the Prime-Time-Power program for residential load management. This antiquated system is beginning to be unreliable and eventually needs to be replaced. This system is one of many energy reduction tools within the Demand Side Management (DSM) system. The award of this contract to Aclara will include the purchase of Load Management Switches that will replace the current Prime-Time-Power system with a much more precise, simple system, that will work through the AMI system. Because these Load Management Switches will be used as a DSM solution, they will be funded out of the Prime Time Power account in the annual Operating and Maintenance budget for FY 2026/27 through FY 2030/31. **A yearly amount o f $406,000 including taxes, will be ear-marked in the DSM budget each year for Load Management Switches**. **It is important to note that when the time comes for council to approve both of the annual operating budgets and Council chooses not to approve funds for the purchase of the Load Management Switches, then switches will not be purchased, and it will not affect the condition of this contract. Staff is not asking for approval of funds for Phase 3 within this Council Action Form. Phase 3 is outlined in the contract but is subject to the appropriation of**

fund by the Council at the time Phase 3 occurs.

There is one other future funding requirement Council needs to be aware of. Beginning in FY 2027/28 and each year after, Electric & WPC will be including in their annual Operating & Maintenance budgets, the hosted service costs for software operations and the customer portal. This cost is expected to total $390,516.85 for FY 2027/28. Staff is not asking for this funding approval at this time.

Aclara is a limited liability corporation established in 1972. They were acquired by Hubbell Inc. in Feb of 2018 and are a division of Hubbell Inc.

ALTERNATIVES:

1. Award a contract to Aclara Technologies, Inc, of Shelton, CT, for Advanced Metering Infrastructure (AMI) System for the City of Ames, in the not-to-exceed amount of $7,668,293.89, including taxes for Phases 1 & 2.

2. Award a contract to another vendor.

3. Do not award a contract.

CITY MANAGER'S RECOMMENDED ACTION:

Development of a modern metering infrastructure will benefit the electric and water utilities in significant areas and provide customer service access to real-time billing information. Purchasing an AMI system will be an effective tool to develop customer-based programs that reduce outages, limit peaks, and enhance services to the city ratepayers. Therefore, it is the recommendation of the City Manager that the City Council adopt Alternative No. 1, as described above.

ATTACHMENT(S):
AMI Pricing Schedule rev1.xlsx