



MEMORANDUM

EUGENE WATER & ELECTRIC BOARD

Rely on us.

TO: Commissioners Mital, Simpson, Helgeson, Manning and Brown
FROM: Roger Gray, Greg Armstead, Erin Erben, and Lance Robertson
DATE: February 5, 2015
SUBJECT: AMI Contracts submitted for Approval
OBJECTIVE: Board Action: Approval of Sensus and Harris contracts for AMI implementation

Issue

Management has negotiated contracts with two providers of essential Advanced Metering Infrastructure services, hardware and software (Harris and Sensus). Management seeks approval of these two contracts to allow for the AMI project to proceed into the initial implementation phase during 2015.

The remainder of this memorandum describes the essential elements of the contracts, the key project elements these contracts enable, and re-summarizes the strategic interest EWEB has in pursuing this technology strategy.

Background

The Board of Commissioners voted to adopt [Resolution 1322](#) in October 2013. This resolution granted approval to the creation and execution of an Advanced Metering Infrastructure (AMI) project using implementation strategy 2 (also known as “opt in”). Opt-in is a different approach than the traditional “opt-out” adopted by most other utilities, in which customers must inform the utility that they do not wish to have an AMI-enabled meter installed. It is also different than the “no option” approach adopted by some utilities, in which the utility just installed 100% AMI meters as part of a normal practice. Under “opt-in,” customers must request an AMI-enabled meter to take advantage of certain programs and value-added services. The resolution further directed the General Manager to negotiate AMI project contracts in conformity with the chosen “opt in” strategy, and then to present final contracts for approval before the Board as necessary.

A brief history of AMI planning

AMI (or AMR) study and planning at EWEB has been taking place since 2007. The October 2013 action by the Board culminated years of evaluation, study, planning public engagement and assessment of key business case drivers for an AMI project, summarized as follows:

- At the March 2010, Strategic Planning retreat of the EWEB Board, commissioners supported further exploration of AMI.
<http://eweb.org/public/commissioners/meetings/2010/100323/SBM032310.pdf>

- At the April 17, 2012, regular meeting of the Board, management brought to the Board a business case analysis of AMI which covered four scenarios:
 - Status quo (the base case)
 - Basic AMI for Electric Utility only (alternative #1)
 - Basic AMI for both Electric and Water Utilities (alternative #2)
 - Basic AMI for both Electric and Water Utilities, plus advanced AMI to create electric resource benefits for electric customers (alternative #3)

The Board directed management to further evaluate alternative #3 and directed management to reach out to the medical community to obtain input regarding RF (Radio Frequency) concerns presented by members of the public.

http://eweb.org/public/commissioners/meetings/2012/120417/WS1_AMIBusinessCase.pdf

- At the September 4, 2012, regular meeting of the Board, Management presented its research regarding RF concerns raised.

http://eweb.org/public/commissioners/meetings/2012/120904/WS1_AMIandCommunityEngagement.pdf

- At the July 23, 2013, special session of the Board, Board members heard presentations from Dr. Peter Valberg and Dr. Paul Dart on their view on AMI and RF. This session also followed more than a year of public meetings, presentations and other community engagement activities related to AMI.

<http://eweb.org/smartmeter/documents#radio>

- At the August 6, 2013, regular meeting of the Board, Management presented an update to the Board on business case assumptions, incorporating feedback from new Board members and adopting the most conservative business case view to address uncertainty regarding timing of benefits realization. In this analysis, management compared two options:
 - Status quo
 - Basic AMI for the Electric & Water Utilities plus advanced AMI to create electric resource benefits for electric customers

http://www.eweb.org/public/commissioners/meetings/2013/130806/M11_AMI.pdf

- At the Board's October, 2013, regular meeting, the Board of Commissioners voted to adopt Resolution 1322.

http://www.eweb.org/public/commissioners/meetings/2013/131001/M7_AMI.pdf

Discussion

A very basic function of an AMI system is to remotely read meters with technology rather than with the traditional meter reading approach. EWEB's business case shows that this traditional or "tactical" aspect of the business case is clearly positive.

While a fully deployed AMI system would realize operational benefits and reduce future cost, the key business drivers for deploying AMI technology also include the ability of the technology to enable achievement of key demand response/demand management (DR/DM) goals of the Integrated Energy Resource Plan (IERP) , help EWEB provide customers more timely information about water use in the event of a major water supply interruption and providing several value-added services to customers that can only be offered with advanced metering. Today, EWEB has no 2nd source of water and even after the Alternative Water Source (AWS) is completed it will only be able to meet a portion of EWEB's base demand. There are also clear customer choice benefits that customers have expressed interest in that a modern AMI system could provide (e.g. water leak detection, outage notification, pre-pay, etc.) In this view, AMI is a strategic tool that requires lower participation than a full-blown AMI rollout, and has strategic (as opposed to strictly tactical/operational) benefits to the utility and to customers.

With EWEB's current situation of being "energy (kWh) resource long," EWEB is afforded time to roll out the technology slowly, focusing on customers who want the technology and wish to participate in utility programs, including those that enable the resource benefits described in the business case documents. EWEB is presently "capacity (kW) resource short" and relies exclusively on the marketplace today to meet these shortages. The NW region is expected to go into capacity balance in 2018/19 and the marketplace for capacity will tighten. Since EWEB's IERP today relies solely on the marketplace we must develop alternatives such as DR/DM to provide alternative to close this shortfall or we risk depending on a potentially tight and volatile marketplace for power.

Adoption of the "opt-in" approach also shifts EWEB's strategy from one predominantly based on tactical and operational cost reductions (meter reading) to one that is predominantly focused on providing long-term strategic customer value and ability to manage our IERP and AWS, which are key components of EWEB's adopted Strategic Plan, seen here at:

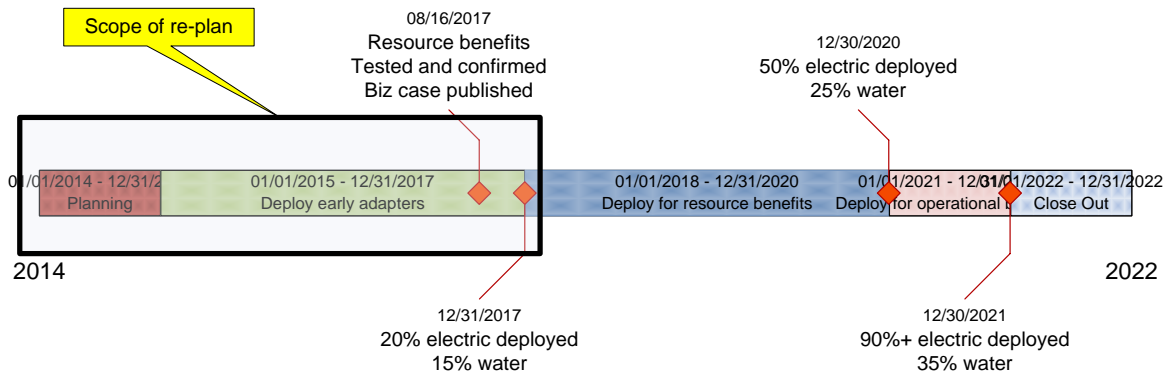
http://www.eweb.org/public/commissioners/meetings/2014/140304/M7_Proposed2014StrategicPlan.pdf

As detailed in Section 1 below, once the AMI infrastructure (hardware and software) is installed, EWEB will begin to offer customers added-value services and products that can only be provided efficiently with an AMI-enabled meter. The meter becomes secondary to the true "value proposition" for the customer, which is the ability to take advantage of added services. It is still expected that as the concentration of AMI meters grows larger that EWEB and our customers will also realize tactical and operational benefits such as lower O&M costs of meter reading.

Management has developed an AMI rollout plan that emphasizes customer choice (i.e. opt-in), focuses on the resource benefits, and allows for the tactical/operational benefits to materialize in later years when customer acceptance and adoption rates are high enough.

Section 1 – Schedule

Management plans for AMI to roll out in three distinct phases, as follows:



- Phase 1 – 2015 through 2017: Includes lab and field testing of the meters and gradual meter replacement during routine maintenance. Lab testing will include testing by a 3rd party as well as EWEB. As part of routine replacement, customers that opt-in will receive AMI-enabled meters. Customers that do not Opt-in will receive AMI capable meters, but the radio transmission features will be turned off. This phase would include field testing and deployment of four new or improved services for Opt-in customers to take advantage of, including:
 - Advanced outage management – The meter notifies EWEB if an outage has occurred, instead of waiting for a customer call. Customers also may be able to receive an automated text message or other notification. This will allow EWEB to more quickly respond to outages, manage larger-scale outages and provide customers with timely and better two-way communications.
 - Remote Connect and Disconnect – Customers can schedule service turn on (and off) at a time of their convenience, instead of during a four-hour window during workdays. EWEB benefits by reducing the need for “truck rolls” to start or stop service, and customers benefit greatly by having instantaneous starts or stops to service, if desired. EWEB expects this service to be valued particularly by high-turner over customers such as students.
 - Customer energy usage – Customers can view and analyze interval readings to understand their usage, likely using a web portal. Interval readings can be more frequent to provide customers better information. This technology also may be available for water usage.
 - Leak Detection – Customers (and EWEB) are alerted to potential water leaks detected by advanced meters and are notified when detected, instead of when a high bill is received.

To prepare for rollout of these and other value-added services, EWEB will conduct surveys, pilots and other market-segmentation work. Market segmentation can help EWEB target specific customer groups with specific services, which will cost less than traditional marketing efforts that appeal to all customers. The goal is to offer services to customers who are most likely to adopt new services that are AMI-dependent.

In this first phase, there are two guiding principles: 1) while tactical and operational O&M cost-reductions is not an early outcome, that customer choice is a predominant value, and 2) that in maximizing customer choice in selecting value added programs, EWEB will seek efficiency in roll out strategies, target markets and early programs to seek win/wins for both

customers and the utility.

Management anticipates that at least 20% of electric customers will choose to have AMI meters by the end of this three year period. Water meters are expected to adopt at a lower rate, reflecting more gradual maintenance replacement and limited number of services to offer. Management also notes that we expect commercial adoption rates to be higher than 20%.

- **Phase 2 – 2018-2020:** This phase involves working to leverage the 20% (and a potentially greater percentage of commercial electric) of AMI-enabled customers created in Phase 1 to offer more advanced rates (such as time-of-use) and demand-management services that will enable realization of the resource benefits outlined in the business case and IERP, without requiring full scale roll out of meters to all customers. Management also expects Phase 2 to follow a successful replacement of our Customer Information System with a more modern CIS that can provide additional customer value, services and benefits. In Phase 2, the following new services would roll out to customers, enhancing the initial bundle:
 - Prepaid metering – Customers prepay for their electric consumption and manage their available usage. This is expected to greatly reduce EWEB-initiated disconnects for non-pay. For utilities that have implemented this program they have found a significant improvement in customer relationship and lowering of disconnect for non-pay situations.
 - Enhanced Pricing Programs – Customers can choose from multiple rate schedules that more closely match their lifestyle, such as the residential time-of-use pilot that is currently under way, or a commercial time-of-use rate structure or other rate offerings that match the customer’s business needs.
 - Enhanced automatic hookup – Large-scale landlords and property owners would receive services that allow them to better manage service connects and disconnects resulting primarily from the annual student migration.
 - Other services – EWEB staff has identified several other services that may be of potential interest to customers, but they will require further analysis and experience before a final mix of services can be determined.

Management anticipates that at least 50% of electric customers will have AMI meters by the end of this second three-year period.

- **Phase 3 – 2021 and beyond:** This final phase will be determined by the results of the first two phases. As larger concentrations of AMI meters are installed EWEB will retire meter reading routes and begin to realize additional O&M savings that were articulated in the business case.

Section 2 – Cost management

With the shift to “opt in,” initial cost estimates become largely dependent on the number of customers who choose the services offered. The project moves from a fixed cost, \$27-million contract with Sensus that occurs over a 1-2 year period to a more gradual deployment of AMI over seven (7) years or longer. The contract with Sensus is also smaller now since the installation of AMI meters is largely expected to be performed by internal EWEB labor given the slower roll out. Total costs of a full AMI implementation over 7 to 10 years remain in the \$27-\$30 million range, but also are dependent on adoption rates in the out-years. This gradual-deployment strategy allows EWEB to reduce up-front investments significantly, until customer adoption rates can be gauged.

Management has updated the Long Term Financial Plan (LTFP) with the following capital and O&M expenditures. These figures were included in the most recent Board update on the LTFP. The 2015 figures represented in the chart below are included in the Board-approved 2015 budget.

	2015	2016	2017	Grand Total
AMI capital investment	\$2,013,000	\$1,600,000	\$900,000	\$4,513,000
AMI O&M costs	\$ 490,000	\$ 560,000	\$622,000	\$1,672,000

Note: These figures combine both electric and water utility costs

Section 3 – Sensus Contract

At the Board’s regular March 5, 2013, meeting, commissioners received a briefing of the Sensus contract as it was constructed for a full-scale roll out. Many of the underlying provisions, such as commercial terms, pricing for meters, etc., remain unchanged. The initial analysis presented to the Board members can be found at:

http://www.eweb.org/public/commissioners/meetings/2013/130305/M5_AMIContractwithSensus.pdf

The remainder of this section focuses on the changes made to that contract document in order to conform the Sensus contract to the “opt in” strategy adopted by the Board in October, 2013, as directed by Resolution 1322.

The follow table highlights the changes negotiated with Sensus after the adoption of Resolution 1322:

Original	Modified for Opt-in	Implications
Total contract price was \$27m	Total contract "not to exceed" \$20.5m	EWEB bears responsibility for meter installation work
Hosting of IT occurs on premise at EWEB	Hosting of IT occurs as a service, at Sensus	Allows EWEB to ramp up IT investment with customer uptake, instead of pre-buying hardware
EWEB to purchase radio spectrum at \$650k	EWEB to lease radio spectrum at \$50k/yr, with option to buy	Lower up -front costs; additional investment driven by customer demand. Sensus will manage airwaves, not EWEB
All meter prices fixed for 5 years	All meter prices fixed for 8 years	Allows greater cost certainty over longer period
Entire network to be built year 1 at \$2m (15 collector sites), by Sensus	Network built over time by EWEB. First year will be 3 sites. Additional as customer uptake dictates for capacity purposes.	Lower up-front costs; additional investment driven by customer demand. EWEB will have to monitor capacity and coverage and adjust when necessary
7% hold back on entire contract, paid at final acceptance, ~1 year after contract start.	10% hold back on services only (not meters); paid upon initial acceptance (18 months after start) and final acceptance (36 months after start)	Lower overall hold back, held for longer period.
Fixed meter price for backup residential electric meter (L+G) if Sensus meter does not pass tests	Sensus will sell EWEB communication modules, and EWEB has right to buy meters from 3rd parties (L+G, GE) and have them install comm boards.	Eliminates Sensus as middleman in meter procurement cycle. Per meter costs for L+G are higher than Sensus. Field testing conducted by EWEB will establish if L+G meters are higher quality
All installed meters are AMI enabled and broadcast 4 times a day.	Sensus will modify their meter and head-end software to add options to allow meters to be set to limited opt-in (broadcast reading once per month, broadcast alerts/events if they occur) or full opt-out (meter is listen-only)	Allows EWEB to place AMI "capable" meters everywhere, but turn off the RF if customer has privacy/health concerns. Off/on status can be set remotely. Maximizes customer choices, allow minimizing of RF.
All ~142,000 meters deployed in 12-18 months	Meters deployed at pace set by customer adoption (opt in)	Allows EWEB to purchase meters as needed. Smoothes overall project costs over a longer period of time.

Section 4 – Harris Contract

In conjunction with the Sensus contract, Management also recommends a contract for Harris to provide Meter Data Management (MDM) software. The key implication is that the Sensus contract for an AMI system is a predecessor to acquiring MDM software, so both contracts would be approved simultaneously.

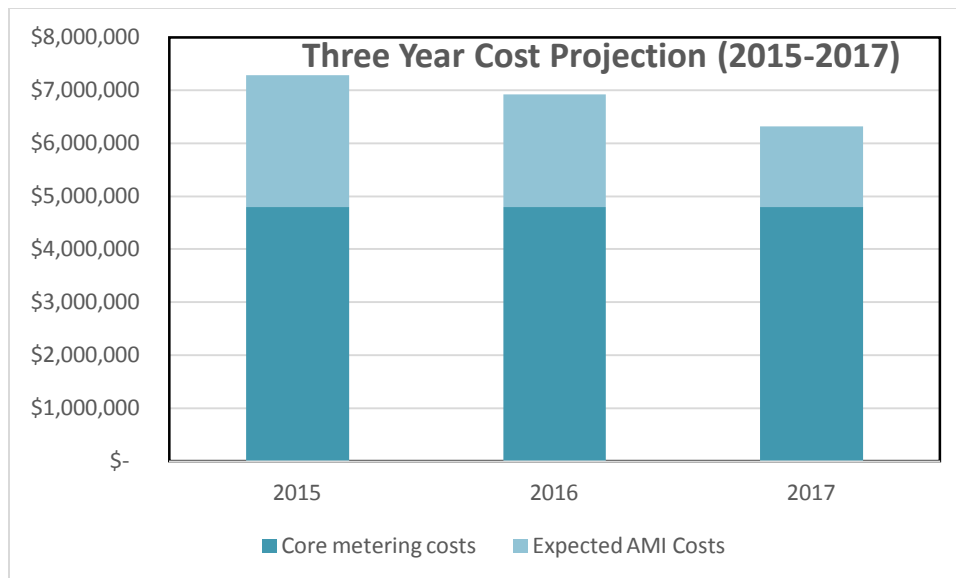
An MDM system is an adjunct system that utilities typically acquire with AMI. The AMI system typically handles the network and data collection, and the MDM system handles downstream analysis, historical data storage and integration with 3rd party systems such as Outage Management, CIS, etc.

After selecting the Sensus AMI system, EWEB allowed for a public bid for software companies to provide MDM software. Harris Utilities was the top ranked proposer, able to demonstrate multiple, successful implementation with Sensus AMI, along with being the low cost bidder.

Total contract value for Harris is \$1.2 million, which is included in the LTFP. The MDM software itself was priced at ~\$400,000, along with ~\$400,000 in implementation services. The implementation services are to be provided by Harris in setting up the system and integrating it with Sensus AMI. Payments made are to be milestone based, and 50% of the contract value is based on EWEB acceptance of the working system through stage gates referred to as “Initial Acceptance Test” and “Final Acceptance Test”. The final increment of this contract is ~\$85,000 per year in annual maintenance fees for five years, bringing the total paid over 5 years to \$1.2 million.

Section 5 – Strategic Considerations

Perhaps the most important consideration at this time is to recognize that EWEB essentially has been on hold for almost a decade on meter replacement. Our average meter stock has aged beyond typically recommended lifecycle and we are falling further behind on use of technology. Using a fairly standard assumption that meters should be replaced approximately every 15 years EWEB needs to make a decision that is now long overdue. Not doing AMI at this time is not a zero cost option. A non-AMI decision would also require a significant investment. Although AMI meters (water and electric) are both more expensive than non-AMI meters that cost difference on a percentage basis shrinks as we factor in installation/labor costs. The figure below shows this difference for the initial phase of AMI. The cost difference continues to shrink over time as the upfront fixed elements of the AMI system are not incurred as new AMI meters are deployed. It is important to recognize that without this incremental investment, future benefits such as O&M reductions and resource benefits will not be created.



Given that a decision needs to be made to replace meter infrastructure, EWEB's basic options are: (1) AMI or (2) non-AMI. Furthermore, since meter life is about 15 years this decision is really a 15 year decision. If EWEB went non-AMI, it would be difficult to change to AMI for the next 15 years given the size of the investment. Non-AMI meters don't provide any tactical/operational or strategic benefits. They basically keep us on our 20th century utility model. Management has recommended the AMI choice for several years and the Board by various actions has approved that direction because of the obvious benefits it provides.

AMI does have an incremental cost over a non-AMI system, but it will position EWEB for the future and it will provide the following benefits that cannot be obtained from a non-AMI system:

- Most fundamentally it provides options and ability to provide services to customers that will enhance customer value.
- Will allow EWEB to formulate services and options working with customers to offer DR/DM to meet our IERP strategy of not building peaking power plants or placing EWEB in financial or physical risk of over-relying on the spot market.
- Provides various services that customers have already expressed strong interest in such as: water leak detection, advanced outage information, remote connect/disconnect energy usage information, water usage information, pre-paid service options and other services.
- At the expected larger concentration rates, EWEB expects to begin to realize O&M savings in the form of lower meter reading costs. Ultimately, this lower cost also benefits AMI customers.

Management remains convinced that AMI is the logical path forward to prepare EWEB for the future. The additional investment in AMI over non-AMI positions EWEB to provide new customer services and to realize savings over time. It is critical to supporting other strategic directions of EWEB such as our IERP and AWS.

Based on the opt-in direction approved by the Board, Management conformed the Sensus contract to be more a "pay-as-you-go" contract over several years as opposed to a shorter "big-bang" contract. EWEB still obtains the benefit of a larger scale contract with our favorable pricing in spite of the structural change to the expected AMI rollout.

Recommendation

Management recommends that the Board authorize the General Manager to execute both the Sensus and Harris contracts as enumerated above.

EWEB BOARD AGENDA ITEM ACTION REQUEST
For Contract Awards, Renewals, and Increases generally over \$1 million

The Board is being asked to approve a contract with **Sensus USA** for **Advanced Metering Infrastructure (AMI) Implementation**.

Backgrounder ("See backgrounder information") Yes

Board Meeting Date: February 17, 2015

Project Name/Contract#: Advanced Metering Infrastructure Implementation

Primary Contact: Roger Gray Ext. 7130

Secondary Contact: Greg Armstead Ext. 7734

Purchasing Contact: Quentin Furrow Ext. 7380

Action Requested:	
<input checked="" type="checkbox"/>	Contract Award
<input type="checkbox"/>	Contract Renewal
<input type="checkbox"/>	Contract Increase
<input type="checkbox"/>	Other

Contract Amount:

Original Contract Amount: \$ 20.5 million

Additional \$ Previously Approved: \$

Invoices over last approval: \$

Percentage over last approval: %

Amount this Request: \$20.5 million

Resulting Cumulative Total: **\$20.5 million**

Funding Source:	
<input checked="" type="checkbox"/>	Budget
<input type="checkbox"/>	Reserves
<input type="checkbox"/>	New Revenue
<input type="checkbox"/>	Bonding
<input type="checkbox"/>	Other

Contracting Method:

Method of Solicitation: Formal RFP

If applicable, basis for exemption: N/A

Term of Agreement: 8 years

Option to Renew? Yes

Approval for purchases "as needed" for the life of the contract No

Form of Contract:	
<input type="checkbox"/>	Single Purchase
<input checked="" type="checkbox"/>	Services
<input checked="" type="checkbox"/>	Personal Services
<input type="checkbox"/>	Construction
<input type="checkbox"/>	IGA
<input checked="" type="checkbox"/>	Price Agreement
<input type="checkbox"/>	Other

Narrative:

The Board is being asked to approve a contract with **Sensus USA** for **Advanced Metering Infrastructure (AMI) Implementation**.

In March 2011, staff issued a multi-phase Request for Proposals for AMI Implementation. In the first phase (Request for Qualifications) staff received and evaluated fourteen Statements of Qualifications from AMI firms. Six firms were determined as "Qualified". In July 2011, staff issued the second phase (Request for Technical and Cost Proposals) to the six qualified firms. Staff received and evaluated four responses to the request for technical and cost proposals. After evaluation of the technical and cost proposals, the three highest-ranked firms were invited to present scripted demonstrations of their AMI systems. In January 2012, staff completed the evaluation process and Sensus, USA was determined to be the Highest-Ranked Proposer.

In February 2012, staff entered contract negotiations with Sensus, USA to obtain written agreement on the statement of work and the final contract price. In October 2013, the Board adopted Resolution 1322 which approved the creation and execution of an AMI implementation strategy 2, known as "opt-in". Staff has negotiated a revised contract based on this strategy and now seeks Board approval of the revised contract. Details of the negotiated contract are contained in the attached backgrounder.

ACTION REQUESTED:

Management requests Board approve a contract with **Sensus USA** for **Advanced Metering Infrastructure (AMI) Implementation**. Funds for this project were budgeted for 2015 and will be budgeted annually.

SIGNATURES:

Project Coordinator: _____

Manager: _____

Purchasing Manager: _____

General Manager: _____

Board Approval Date: _____

Secretary/Assistant Secretary verification: _____

EWEB BOARD AGENDA ITEM ACTION REQUEST
For Contract Awards, Renewals, and Increases generally over \$1 million

The Board is being asked to approve a contract with **Harris Utilities** for a **Meter Data Management System**.

Backgrounder ("See backgrounder information") Yes

Board Meeting Date: February 17, 2015

Project Name/Contract#: Meter Data Management System

Primary Contact: Roger Gray Ext. 7130

Secondary Contact: Greg Armstead Ext. 7734

Purchasing Contact: Quentin Furrow Ext. 7380

Action Requested:

- Contract Award
- Contract Renewal
- Contract Increase
- Other

Contract Amount:

Original Contract Amount: \$ 1.2 million

Additional \$ Previously Approved: \$

Invoices over last approval: \$

Percentage over last approval: %

Amount this Request: \$1.2 million

Resulting Cumulative Total: \$1.2 million

Funding Source:

- Budget
- Reserves
- New Revenue
- Bonding
- Other

Contracting Method:

Method of Solicitation: Formal RFP

If applicable, basis for exemption: N/A

Term of Agreement: 5 years

Option to Renew? Yes

Approval for purchases "*as needed*" for the life of the contract No

Form of Contract:

- Single Purchase
- Services
- Personal Services
- Construction
- IGA
- Price Agreement
- Other

Narrative:

The Board is being asked to approve a contract with **Harris Utilities** for a **Meter Data Management System**.

In August 2013, staff issued a Request for Proposals seeking a "prime" contractor to implement a Meter Data Management System (MDM). Five proposals were received, and after completing the evaluation of the technical proposals, the two highest ranked firms were invited to present system demonstrations. After system demonstrations were completed, Harris Utilities was selected as the highest ranked proposer.

In January of 2014, staff began the contract negotiation process with Harris Utilities to obtain written agreement on the statement of work and the final contract price. Staff has negotiated this contract based on the strategy described in the Board adopted Resolution 1322, known as AMI implementation strategy 2 or "Opt-in". Details of the negotiated contract are contained in the attached backgrounder.

ACTION REQUESTED:

Management requests Board approve a contract with **Harris Utilities** for a **Meter Data Management System**. Funds for this project were budgeted for 2015 and will be budgeted annually.

SIGNATURES:

Project Coordinator: _____

Manager: _____

Purchasing Manager: _____

General Manager: _____

Board Approval Date: _____

Secretary/Assistant Secretary verification: _____