



MEMORANDUM

EUGENE WATER & ELECTRIC BOARD

Rely on us.

TO: Commissioners Brown, Carlson, Mital, Simpson and Helgeson
FROM: Frank Lawson, General Manager
DATE: January 31, 2018
SUBJECT: Advanced Metering Benefits and Implementation Options
OBJECTIVE: Review and Potentially Amend Board Resolution 1322 (October 2013)
Advanced Metering Infrastructure (AMI)

Issue

Management is asking the Board to consider amending Resolution 1322 (October 2013) based on the strategic benefits and costs of different deployment approaches to advanced metering (opt-in and opt-out). Management is requesting EWEB Commissioners remove the tactical constraint limiting the deployment of communicating meters to “opt in” only customers.

Background

The Board approved Resolution 1322 in October 2013, authorizing management to proceed with advanced metering under an “opt-in” approach, at that time referred to as “implementation strategy 2”. Along with the resolution, a set of principles were developed that are still consistent with the utility’s values, but should be updated and transferred to other utility policies that are more frequently reviewed.

After updates to several IT systems, processes and procedures, along with the procurement of meters, EWEB began installing advanced meters in early 2017. At the October 2017 Board Meeting, staff presented a status report on the advanced metering program, along with lessons learned and various deployment rate options. As feedback, the Board provided general direction recommending the full replacement of metering assets over an eight (8) year period.

Throughout 2017, the Board worked with management to develop a 10-year strategic plan, which was approved on August 2, 2017. Advanced metering is a tool that will enable EWEB to achieve our two primary strategic priorities within the next decade; emergency preparedness and disaster recovery, and effective management of electric generating resources.

Discussion

To date, EWEB has installed 3,900 advanced electric meters and 800 water meters, approximately 3% of EWEB's 154,000 meters. Of the meters commissioned, 63% are communicating. Our present deployment rate is about 500 electric meters per month and 100 water meters per month. To meet an eight-year deployment goal, EWEB will need to install and commission approximately 1,000 electric and 500 water meters per month.

The installation, commissioning, deployment, and operation of EWEB's advanced meters have led EWEB staff to the following conclusions.

1. The metering, storage, and communication technology of the meters works reliably. More than 98% of the advanced meters with the communication features turned on are read remotely and billed every month.
2. The (opt-in) implementation approach contained in the original resolution has resulted in meter deployment that is inefficient and expensive, increasing cost for all customers whether they opt in or opt out.
 - a. Advanced meter deployment includes installation and commissioning. Even after a meter is installed, a scattered opt-in deployment increases driving time to and from work sites, requires more setup time per meter, and adds phone calls and administrative work for customer service representatives. These processes add 20-30 minutes per meter.
 - b. Staff estimates that over the course of an eight-year deployment, installation under an opt-in approach will cost about \$600,000 more per year than it would under an opt-out approach.
3. Many customers do not respond to EWEB's communications efforts, which by resolution results in status quo non-communicating meter operation. This decreases the system-wide benefits realized through higher-quantity deployment of communicating advanced meters. EWEB is unable to reach approximately 50% of customers within the installation/deployment time window.
4. Meter reading routes become less efficient when communicating and non-communicating meters are mixed on the same route.
5. Cyber security risks are low. In 2017, EWEB hired a third-party to test the vulnerabilities of the advanced metering system, including EWEB communications and network systems. The evaluation revealed one cyber security vulnerability in a system that is protected by EWEB's network firewalls. That vulnerability is addressed in a new software version, which EWEB staff will install soon.

EWEB safety benefits of advanced meters

Over the last six years, meter readers and connect/disconnect staff have had a 60% chance of experiencing a reportable injury each year, and have averaged three days of lost work per person per year due to on-the-job injuries. Meter reading is the most hazardous job at EWEB, by reported incidents per employee. With the opt-in approach only, we have marginally improved safety for EWEB field staff by replacing meters in some unsafe locations, including highway shoulders and other dangerous settings. Using an opt-out approach facilitates the opportunity to

further improve field staff safety by upgrading entire meter routes.

Customer safety benefits of advanced meters

Advanced meters have demonstrated their safety benefits for customers, even in limited deployment. For example, on October 5, 2017, a residential customer reported a power outage. A EWEB troubleshooter investigated and found that the customer’s advanced electric meter had automatically disconnected itself due to an extreme high-temperature condition. Further investigation revealed a damaged meter socket, a condition that can lead to meter destruction and, in some cases, structural damage if not detected. After the meter safely disconnected service, an electrician was able to repair the meter base with no damage to the meter or the residence. Legacy electric meters, whether analog or digital, do not detect this condition, leading to meter and property damage.

RF Radiation

Some concern has been expressed in the community about the safety of advanced meters, even though they communicate for just a few seconds a day or less. Many studies cited by those concerned compare advanced meters to cell phones and wireless routers, both of which communicate at frequencies similar to advanced meters, but with hundreds or thousands of times more transmissions per day. Based on multiple studies reviewed by EWEB and state and federal health authorities, along with the experiences of hundreds of other utilities across the nation, management believes that EWEB’s application of advanced metering will not cause health or safety issues.

Strategic alignment of the opt-in and opt-out approaches

The Board adopted a new 10-year strategic plan on August 2, 2017 that prioritized two critical utility issues including emergency preparedness and disaster recovery, and effective management of electric generating resources. The plan also reiterated EWEB’s values around safety, reliability, responsibility, and community.

A flexible deployment method, not restricted to “opt in”, better aligns with EWEB’s strategic objectives and values. Removing the opt-in constraint facilitates system-level benefits for all customers, while “opt in” only benefits a limited set of customers at a cost to all.

Using the strategic plan as the basis, the following table captures the specific customer benefits associated with the current (opt-in) or proposed (opt-out) deployment method. “Low” denotes high-cost benefits for individual customers only. “Medium” represents investments with limited system-wide benefit. “High” indicates areas that maximize both individual customer and system-wide strategic benefits for all customers, including those who opt-out.

Strategic Impact of Deployment Methods	Current	Proposed
Priority - Resiliency		
<i>Emergency preparedness and disaster recovery</i>		
Event response	Medium	High
Smart grid, flexible distribution, balance load with limited supply	Low	Medium
Priority - Electric Supply Resources		
<i>\$1.5 billion in power resource contracts by 2028</i>		
Consumption modeling	Low	High
Demand response and customer partnerships	Medium	High
Value - Safety		
<i>Workforce and public safety</i>		
Reduction in hazardous work	Low	High
Property protection (faulty customer equipment, water leaks)	Medium	High
Value - Reliability		
<i>Delivery of quality water and electricity</i>		
Product quality	Low	High
Outage management	Low	High
Value - Responsibility		
<i>Stewardship of our customers' financial and natural resources</i>		
Improved billing accuracy	Medium	High
New pricing options	Medium	High
Operational efficiencies	Low	High
Strategic staff reallocation	Low	High
Carbon reduction	Low	High
Better facilitation of conservation and climate-change response	Medium	High
Value - Community		
<i>Our commitment and obligation to serve our local community</i>		
Better account services and personal finance management for vulnerable members of our community	Low	High
New advanced products and services	High	High

Allowing EWEB to use an opt-out deployment approach, where applicable, will allow EWEB to have more advanced meter coverage for our customers and will better support EWEB's two strategic priorities:

- **Resiliency:** Having more comprehensive, timely outage information will aid our restoration efforts, allowing us to restore service in a much more planned and efficient manner while exposing fewer employees to hazardous field conditions.
- **Electric supply resources:** By making accurate, time-based load and consumption data available, EWEB will be able to more accurately predict and dynamically control the power we will need to purchase. Because of the large magnitude of our power purchases and volatility of power markets, even small gains in modeling accuracy will result in large numbers of dollars and GHG emissions saved.

In addition to supporting our main strategic goals, a flexible deployment approach will allow us to support our values better across all customer classes:

- **Safe:** Complete coverage will allow us to greatly reduce the number of hazardous meter reading staff positions.
- **Reliable:** Complete coverage will provide all customers with leak, backflow and power quality detection monitoring and improve the reliability and safety of electric and water delivery.
- **Responsible:** With the ability to remotely read meters and connect and disconnect customers, EWEB will provide faster response times for connections and reduce truck rolls and carbon emissions. In addition, remote reading will greatly increase billing accuracy and reduce estimated bills, increasing customer satisfaction and confidence. Finally, the ability to offer new pricing options, like time-of-use billing, will allow all customers to better monitor and control their usage, as well as helping EWEB partner with customers to align consumption patterns with less expensive sources of supply.
- **Community:** Faster, less expensive move-in and reconnect services will benefit the most vulnerable members of our community, as will the option to sign up for prepaid water and electric services (available with a new Customer Information System, currently planned for 2020). This reduces the financial burden on those who can best utilize their limited funds elsewhere.

Recommendation

Based on the experience gained from EWEB's initial deployment, and the potential to more effectively execute our 10-year strategic plan, management is recommending that Resolution 1322 be amended as follows:

1. Eliminate the references to and tactical requirements associated with "implementation strategy 2", allowing the Board and staff to determine the most efficient and effective deployment of advanced metering. This could be either opt-in, opt-out, or some combination.
2. Replace the reference to the "Statement of Principles for Advanced Metering Infrastructure" with a reference to "EWEB policies and procedures". Relocating the

content contained within the statement of principles to EWEB policies and procedures (e.g. Customer Service Policies) will facilitate more relevant and frequent Board review.

Requested Board action

Management requests the following motion be considered by the Board.

Requested Motion #1: "...move to approve Board resolution 1811, amending Board resolution 1322."

Requested Motion #2: "...move to instruct the General Manager to revise applicable EWEB policies impacted and/or related to advanced metering for Board approval."

Attachment(s): Original Resolution 1322 (October 2013)
 AMI Statement of Principles (2013)
 Board Memo "Advanced Metering Infrastructure (AMI) Project, dated
 September 24, 2013.
 Board Resolution 1811

**RESOLUTION NO. 1322
OCTOBER 2013**

**EUGENE WATER & ELECTRIC BOARD
ADVANCED METERING INFRASTRUCTURE**

WHEREAS, EWEB has need to replace electric and water meters as a routine on-going business practice and due to an aging meter plant; and

WHEREAS, technological advancements in electric and water metering industries have given rise to a class of metering technology described as Advanced Metering Infrastructure (AMI) that offer greater capability than earlier meters; and

WHEREAS, the Board has a strategic goal to leverage technology where possible to increase efficiency and innovate; and

WHEREAS, EWEB has evaluated these technologies through public bid and identified a system that best matches EWEB's criteria that provides opportunities for gains in operational efficiency and improvements to customer service; and

WHEREAS, EWEB believes these technologies will enable EWEB to provide customers better information with which to better manage their utility bill; and

WHEREAS, EWEB believes these technologies will be essential to achieving the goals of the Integrated Energy Resource Plan by partnering with customers to manage energy usage, thereby reducing Green House Gas emissions; and

WHEREAS, EWEB believes these technologies will be essential to achieving the goal of developing an affordable alternative water resource in the case of emergency; and

WHEREAS, EWEB, having determined that metering technologies are of interest and impact to customers, has developed an AMI Statement of Principles; and

WHEREAS, metering is within the authority of the Board to conduct; and

WHEREAS, the Board has solicited and received customer, public and professional input through market research, pilot tests of the technology, community/neighborhood group meetings, public input at Board meetings, and

WHEREAS, the Board has reviewed customer input regarding health, safety, accuracy, privacy and cost during its August 6, 2013 and prior meetings, and

WHEREAS, the Board has sought the advice of public health experts, including the State of Oregon Epidemiologist, and

WHEREAS, the Board has reviewed background information concerning the project cost, plans and intentions during its August 6, 2013 and prior meetings.

NOW, THEREFORE, BE IT RESOLVED by the Eugene Water & Electric Board that:

1. The Board hereby grants approval to the creation and execution of an Advanced Metering Infrastructure (AMI) project using implementation strategy 2 as was presented to this Board on October 1, 2013; and
2. In order to successfully deploy a working AMI system for both electric and water utilities, the Board directs the General Manager or his/her designee(s) to negotiate contract terms and documents with Sensus USA for the purchase of advanced metering equipment and services satisfying the Board-selected implementation strategy. AMI-project contracts are to be developed in conformity with the Board's chosen implementation strategy and presented for approval before the Board as necessary and in accordance with existing Board contracting and procurement policies and limitations, including EWEB RFP No. 013-2011; and
3. Directs the General Manager or his/her designee(s) to update the Long-Term Financial Plan (LTFP), Capital Improvement Plan (CIP) and other financial planning tools to reflect the Board's chosen AMI implementation strategy; and
4. Requires the General Manager and his/her designee(s) to execute the Advanced Metering Infrastructure project in accordance with the AMI Statement of Principles adopted herein. Execution of the project include, but is not limited to, development of pilots, programs and tariffs, and to regularly apprise the Board regarding the progress made in the project. Said execution shall conform to all EWEB policies and procedures.

DATED this 1st day of October 2013.

THE CITY OF EUGENE, OREGON
Acting by and through the Eugene Water & Electric Board

President

I, TARYN M JOHNSON, the duly appointed, qualified, and acting Assistant Secretary of the Eugene Water & Electric Board, do hereby certify that the above is a true and exact copy of the Resolution adopted by the Board at its October 1, 2013 Regular Board Meeting.

Assistant Secretary

Statement of Principles for the Advanced Metering Infrastructure (AMI) project

- **Safe before Fast.** Prioritize safety of customers and protection of property throughout deployment. This includes thorough meter base inspections by trained installers, and safety testing each meter type before large scale meter deployment. Work with customers, electricians and plumbers to resolve safety issues that might be discovered.
- **Focus on the strategic future and concept of choice.** Partner with customers to provide them with energy (and water) usage information that gives them more control over their bills. Offer customers options to become active participants in meeting the community's long term energy and water needs and helping manage overall utility operational costs. Provide customers meaningful information and options to help them save money while helping the community meet long-term resource needs while containing costs.
- **Minimize RF.** Minimize the number and duration of radio frequency (RF) transmissions wherever feasible without compromising the objectives of the project. Make information about smart meter transmission frequency, duration and strength available to public.
- **Increase customer choice.** Consumers should be able to refuse the installation of a smart meter. Develop programs and services that give customers choice, not mandates. Customers should be free to opt in to programs that interest them, such as time-of-use (TOU) rates, or to remain with standard EWEB rates. Consumers who opt in should be allowed to opt back out.
- **Be proactive and flexible.** Provide advance notification of anticipated meter change outs. Work with customers to schedule meter change-outs for those going to AMI meters.
- **Enable customer access to energy and water usage information.** Actively seek ways to help consumers' access and use their consumption data in the ways they choose. Provide tools and facilitate customers' interest in using compatible devices to retrieve their usage data, either through EWEB or directly from the meter.
- **Protect consumer privacy.** Ensure protection of customer privacy by keeping all personal identification information separate from meters and continuing existing practices of not disclosing customer information without account holder approval or a valid Court order. Secure data storage and transmission through encryption and other means. Regularly test the AMI network for security weaknesses and repair them. Customer usage data will only be used to support EWEB's operational requirements (e.g. distribution design and outage detection) and to support billing and customer programs.
- **Get the bills right.** Verify the accuracy of metering devices. Test meter accuracy and share results with customers at their request.

- **Prepare for and respond to unplanned changes.** Actively monitor technical, regulatory and legal changes in Oregon and other states and advise the Board on outcomes and trends.
- **Cost and Benefit Causation.** Consistent with EWEB's general ratemaking policies and principles, costs and benefits should flow to customer classes based on causation.



MEMORANDUM

EUGENE WATER & ELECTRIC BOARD

Rely on us.

TO: Commissioners Simpson, Brown, Helgeson, Manning and Mital
FROM: Roger Gray, General Manager
Erin Erben, Power Planning and Strategic Planning Manager
Greg Armstead, AMI Principle Project Manager
DATE: September 24, 2013
SUBJECT: Advanced Metering Infrastructure (AMI) Project
OBJECTIVE: Approve AMI Project Direction Resolution No. 1322

Issue

EWEB has been evaluating AMI and its earlier rendition (AMR) since about the 2006/2007 timeframe. While this evaluation has been taking place, EWEB has essentially put asset management of metering infrastructure on hold. Management has done extensive evaluation of AMI and non-AMI futures, developed highly refined business cases and provided detailed follow-up to the Board, the community, and customers. Management does not believe further refinement or evaluation will change the Management recommendation and it is imperative that EWEB make a decision about its future metering infrastructure and move forward. This means either choose AMI and the change it affords us or make a deliberate decision to stay with the status quo and choose a non-AMI future.

Background

As mentioned above, EWEB has been evaluating AMI for many years now. At the March 2010 Strategic Planning retreat of the EWEB Board, there was general support a future with AMI.

<http://eweb.org/public/commissioners/meetings/2010/100323/SBM032310.pdf>

Based on the March 2010 direction, Management developed more detailed AMI project plans and a detailed business case, presented four alternatives to the Board in April. The over 50 page business case document is incorporated by reference:

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

In summary, Management presented 4 alternatives in April 2012:

- Status Quo (no AMI or base case)
- Basic AMI for the Electric Utility (“alternative 1”)
- Basic AMI for the Electric and Water Utilities (“alternative 2”)
- Basic AMI for the Electric and Water Utilities and advanced AMI to create electric resource benefits for the electric utility (“alternative 3”)

The Board directed Management to further evaluate alternative 3. The Board also directed Management to reach out to the “medical community” to obtain, if possible, input from that community on any concerns related to radio frequency (RF). Management performed such an outreach and reported back to the Board in September 2012. This response is also incorporated by reference:

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

Even though the conclusions of primary regulatory agencies and health officials indicate that RF is not a known health concern, Management has, from the beginning, acknowledged that some people and organizations are concerned about RF and other alleged issues raised by smart meters. Management has recommended to the Board, and continues to recommend, that customers be given an “opt-out” option. The Board has generally supported the opt-out idea even though AMI was supported in general.

Following Board direction received at the April 2012 board meeting, Management developed a detailed contract based on Alternative 3 listed above. Development of this contract confirmed the cost estimates and established even greater certainty around the original business case. In August 2013, Management presented an update to the Board on the AMI project including an update to the project economics.

This update is incorporated by reference:

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

In that update, Management presented two alternatives.

- Status Quo (“without AMI”)
- Basic AMI for the Electric and Water Utilities and advanced AMI to create electric resource benefits for the electric utility (“with AMI”)

The August 2013 update refined all of the business case assumptions and incorporated feedback from new Board members that the alternative 3 benefits were uncertain. Management believes they can be realized but that the business case stands even if they are not. Accordingly, the August 2013 proposal included many of the costs of the enhanced AMI system (“alternative 3” from the April 2012 business case), but assumed zero resource benefits from alternative 3. This is an ultra conservative business case that includes costs of the enhanced system, but none of the benefits. This has been misconstrued as a drop in the expected value of the AMI project. The expected value of the AMI project actually increased somewhat. In reality, it shows that even under ultra conservative assumptions the AMI business case still is extremely positive and will create real benefits for EWEB customers.

In response to expressions of concern from some members of the public including a local group led by Dr. Paul Dart, EWEB Management held a variety of public sessions, outreach, and other activities that culminated in a special session of the EWEB Board on July 23, 2013, where Dr. Dart and Dr. Valberg presented to the EWEB Board their views on RF and AMI. These presentations and the Board session were posted to EWEB’s website and are incorporated by reference:

<http://eweb.org/smartmeter/documents#radio> (See, in particular, the links under this heading on the webpage: “Advanced meter/radio frequency information session presentations”.)

Discussion

Management fundamentally thinks that the business case for AMI based solely on the tactical or hard benefits is clearly positive. Even under ultra conservative assumptions, the AMI business case is rock solid. When potential strategic benefits are included the expected business case only gets stronger. However, Management thinks that the most compelling driver for AMI is not necessarily the tactical or hard benefits (basically lower meter reading costs), but the strategic benefits that an AMI system will bring to support EWEB's Electric utility and Water utility futures.

Electric Future

EWEB's adopted integrated electric resource plan (IERP) relies solely on energy efficiency (EE) and demand response/management (DR/DM). This is perhaps the most aggressive and innovative IERP adopted in the nation. While EWEB has a solid track record in the traditional EE world (aka "conservation"), DR/DM is an emerging area. Modern EE and DR/DM will not work with traditional analog meters. In order to successfully achieve EWEB's vision, we must be able to differentiate our products and services with customers and engage at least some portion of customers in active and/or passive energy management programs in order to achieve this IERP vision.

Some customers have raised a concern that AMI is really a hidden plan to "force time-of-use (TOU) rates down their throats" and make them pay higher on-peak rates. This concern is not well grounded for at least two reasons. First, AMI is not actually necessary to implement TOU rates. Several utilities have used non-AMI meters to support TOU rates for many years. The second reason this concern is not well grounded is that customers pay these costs whether they realize it or not. In the rate-making world, the higher cost of on-peak power is simply averaged across all kWh customers consume. The insidious part is that under the current model customers don't really know it and there is nothing they can do about it. Even if some customers move to a TOU-based world and move their consumption to off-peak it has the potential to benefit all customers. Finally, Management has committed that TOU would be a voluntary program for its customers.

The bottom line is that AMI is essential to fully realizing our IERP vision. Some members of the community and Board members have questioned why AMI is so critical now given EWEB's surplus power situation. This is a completely legitimate question. The answer is quite simple. While Management has full faith in the hard and tactical benefits of the AMI system, we need a few years to work with both a live AMI system and with our customers to develop the strategic programs they want that also support our IERP vision. This is why we have started several pilot programs including the TOU pilot. These programs and pilots, however, are on hold pending an AMI decision. (For example, while a TOU program can be implemented without AMI, it would be more cost effective to do so with one.) Management believes that we need a few years to work with customers and industry partners to find what programs work for customers. This is why it is prudent to act now. Let's confirm whether this future works before the need for new resources is upon us.

Our IERP vision makes perfect sense from an engineering and economic viewpoint, but we need to confirm that it works from a marketing and customer viewpoint. We have the great fortune right now of having some time to get this right - to experiment and to validate and optimize the strategic benefits of the AMI system. If we defer the AMI system and the customer-facing programs it affords to the point of actually needing them for immediate resource benefits, we very well could end up not having the time to make them effective and resorting back to yet another traditional "supply side" resource

acquisition strategy. Management believes that the potential resource benefits of an AMI system are great and they are reflected in Attachment 1.

Water Future

Management has continued to refine its recommendation for the Alternative Water Supply (AWS, formerly known as “second source”). Obtaining the water permit on the Willamette River was a critical step. The current long-term financial plans also presented to you at the October 1, 2013 Board meeting represent a significant change in Management’s proposed approach to the AWS.

This Board and former Boards have made it clear that this water risk issue has been and remains a critical issue for EWEB. Management agrees. It is perhaps the most critical issue for EWEB. However, the past approaches and potential solutions were extremely expensive and would have resulted in significant water rate increases. Using the Willamette right as a cornerstone of the supply-side of the AWS strategy, Management has developed a new approach that relies on a much smaller supply option and a very large customer response (i.e. curtailment of demand).

This strategy only works if EWEB can provide near immediate information to customers about consumption coupled with concepts such as emergency water tariffs that might be put in place to support a water emergency program where demand must be reduced immediately to match a limited back-up supply. The existing metering infrastructure is not capable of doing this. An AMI system would be capable of supporting the current AWS vision. Similar to the Electric utility, AMI for the Water utility helps us meet a critical strategic need.

General Issues and Concerns

A variety of issues related to AMI continue to swirl. The RF issue initially was the major concern. Other issues of privacy, security and such continue to be brought up by customers and the public. These were dealt with extensively in the original business case (April 2012). EWEB has conducted outreach to the medical community and has considered points by Dr. Dart by attempting to reduce the “RF footprint” of the proposed AMI system. Management does not believe that any additional information brought to the debate on RF, privacy or security will change minds. From the beginning, Management has recommended that EWEB provide an “opt-out” option regardless of the direction of AMI. Some customers, including many customers who participated in the AMI pilot are waiting for their AMI meter. Management believes that this matter remains best handled as a matter of choice for customers.

In accordance with the respect for choice, management is proposing three alternatives for the Board to make a decision on. Attachment 1 contains 3 basic alternatives for EWEB. These alternatives are summarized as follows:

- Alternative 0: No AMI for at least 10 Years. (If we are not going to move forward with AMI we need to retool our long term strategies and plan and focus on other business priorities.)
- Alternative 1: Tactically Driven AMI Project with emphasis on obtaining maximum tactical benefits (i.e. meter reading savings)
- Alternative 2: Strategically Driven AMI Project with emphasis on obtaining strategic benefits (i.e. supporting IERP and AWS), but still obtaining as much of the tactical benefit as practical.

Alternatives 1 and 2 are better than Alternative 0. However, EWEB needs to make a decision on its future so Alternative 0 is better than “study the issue endlessly” which Management is not recommending as an option. Alternative 1 provides a path forward, including an "opt out" strategy for customers that choose not to have an operational AMI meter.

Alternative 2 focuses on development of strategic programs and benefits. It would rely on an “opt-in” strategy and customer choice. It is not the original “big roll out” concept with some customers opting out. Instead, it is envisioned as a slower development that could take several years. Management believes that the focus on Alternative 2 would allow EWEB to fully explore and develop the strategic benefits which really are ultimately the most important benefits of the AMI system. Ultimately, the concept of choice will likely lead to more than one residential rate class like we have today. This potentially will lead to different rates and programs for customers. This concept is a departure from the “one-size-fits-all” utility model. However, given the complexity of the world we face and the challenges before us, flexibility and change are necessary.

Recommendation

Management recommends Alternative 2.

Requested Board Action

Approval Alternative 2 or provide clear direction on Alternative 1 or Alternative 0.

Assuming approval of Alternative 2 or 1, approves Resolution No. 1322. (Attachment 2)

Assuming approval of Alternative 2 or 1, approves AMI Statement of Principles (Attachment 3)

Attachments

Attachment 1 – EWEB’s Future Metering Alternatives

Attachment 2 – Resolution No. 1322

Attachment 3 – AMI Statement of Principles

ATTACHMENT 1: EWEB’s Future Metering Alternatives

<p>Summary of Significant Factors and Considerations</p>	<p>Alternative 0 “Status Quo” No AMI Project for at least 10 years</p>	<p>Alternative 1 “Tactically Driven AMI Project”</p>	<p>Alternative 2 “Strategically Driven AMI Project”</p>
<p>Short Description</p>	<p>Status Quo for meter reading.. <u>No AMI for water or electric</u>. Catch up meter replacements with non-AMI meters.</p> <p>“Don’t roll—Stay with Status Quo”</p>	<p>Basic AMI for Electric and Water utilities for meter reading and start/stop service.</p> <p>“Start later, but “big roll out”</p> <p>This project alternative would be a traditional meter deployment and implementation meaning large scale and relatively quick deployment for all customers except “opt-out” customers.</p>	<p>Basic AMI for Electric and Water utilities for meter reading and start/stop service plus advanced AMI features to support: (i) power resource benefits, (ii) grid management, (iii) customer facing programs and options and (iv) support of the EWEB’s Water Reliability Initiative (WRI) and Alternative Water Supply (AWS).</p> <p>“Start earlier and ramp up based on customer demand and acceptance of programs and services,”</p> <p>This project alternative would focus more of development of strategic benefits such as IERP/power resources, WRI/AWS and customer facing options. This would likely come with a potential reduction to the tactical benefits of Alternative 1 though. It would be based more on opt-in and more slowly develop than Alternative 1.</p>

Summary of Significant Factors and Considerations	Alternative 0 “Status Quo” No AMI Project for at least 10 years	Alternative 1 “Tactically Driven AMI Project”	Alternative 2 “Strategically Driven AMI Project”
References to past documents.	<p>“Base Case” from April 2012 Business Case</p> <p>“Without AMI” case from August 2013 Business Case update/.</p>	<p>Basically between “Alternative 2” and “Alternative 3” from April 2012 Business Case.</p> <p>“With AMI” case from August 2013 Business Case Update</p>	<p>“Closest to Alternative 3” from April 2012 Business Case, but not exactly due to deployment differences (ramp up deployment vs. big rollout).</p> <p>This was not presented in the August 2013 Business Case Update.</p>
Primary focus and objective of this alternative	Give up AMI future and establish a known future based on traditional metering infrastructure. “Time to fish or cut bait”...either go with AMI or stay with status quo, but not continue the “in between and study it state” that started back in 2007.	This alternative focuses almost solely on “hard” tactical benefits and meter reading operational efficiency. It is a “technology for labor” driven project to reduce future operational cost. It would have some strategic benefits such as outage detection, but these are not the focus on the alternative.	This alternative focuses equally on the development of the potential strategic benefits, but somewhat at the sacrifice of the “hard” tactical benefits. The potential upside of the strategic benefits is material, but less certain. This alternative has the greatest potential for EWEB customers and supports multiple EWEB strategic objectives including the objective of choice...
Analysis Period	20 years	20 years	20 years
Meter life	15 years <i>(Note: even with non-AMI meters, EWEB is no longer assuming 20-30 year meter life.)</i>	15 years	15 years

Summary of Significant Factors and Considerations	Alternative 0 “Status Quo” No AMI Project for at least 10 years	Alternative 1 “Tactically Driven AMI Project”	Alternative 2 “Strategically Driven AMI Project”
20 year total NPV cost of basic meter reading function, meters and systems. (higher is worse)	\$59 million	\$50 million	\$50-\$54 million (added cost is due to higher labor costs during extended meter deployment and possible opt-in credits made to customers).
Tactical benefit relative to “base case”	\$0 benefit relative to base case	\$9 million tactical benefit	\$5 to 9 million tactical benefit (note: part of the benefit is returned directly to opt-in customers)
AMI System	None	Basic AMI for all EWEB electric and water customers except “opt-out” customers (non AMI). Includes HAN and MDM.	Enhanced AMI system for “opt-in” customers. Includes HAN, MDM, DRMS and customer facing programs.
Meter Reading function	Same as today. Manual.	AMI customers: done by AMI system. Non-AMI customers: same as today (less efficient though)	AMI customers: done by AMI system. Non-AMI customers: same as today (less efficient though).
Automation of start/stop electric service	None	Yes, for AMI customers Manual for opt-out customers	Yes, for AMI customers Manual for non-AMI customers
Strategic Issues	Strategic Issues	Strategic Issues	Strategic Issues
Customer facing options such as (i) pre-pay, (ii) web-portal, (iii) home energy display and (iv) other customer facing programs and rate options?	No. EWEB cannot differentiate services and can offer only limited options.	Could be added later on at additional cost.	Yes, various and large potential to support a future where customers participate in their power and water future.

Summary of Significant Factors and Considerations	Alternative 0 “Status Quo” No AMI Project for at least 10 years	Alternative 1 “Tactically Driven AMI Project”	Alternative 2 “Strategically Driven AMI Project”
Supports EWEB’s IERP?	No. Largely limited to existing energy efficiency strategy. Limited or no potential for Demand Response and Demand Management.	Could be added later on at additional cost (program development)	Strategically driven AMI project assumes this as a primary objective.
Supports current WRI/AWS that depends on significant customer response to reduce water consumption	No, EWEB would rely heavily on “public appeal” and slow methods of demand reduction.	Yes, would support “emergency rates”. AMI customers could get relatively quick information. Non-AMI customers would wait.	Yes, could support both “emergency rates” concept, but also new water service tariffs such as “interruptible” service. System could provide immediate information to AMI customers
Supports strategic ability to measure and price services and products for a changing future.	No.	Yes, with later additional investments.	Yes. This is a primary focus upfront.
Additional Cost of Strategically-focused elements.	None	Could be added later.	\$<3 to \$17 million < \$3 million of this cost is upfront cost. The additional costs would not be incurred if the strategic benefits were not proven out through pilots and demonstration projects.

Summary of Significant Factors and Considerations	Alternative 0 “Status Quo” No AMI Project for at least 10 years	Alternative 1 “Tactically Driven AMI Project”	Alternative 2 “Strategically Driven AMI Project”
Description of Strategic elements	N/A	Meter data management system HAN	Meter data management system. Home Area Network Demand Response Management Systems Beyond the meter programs. Varied rate options Pre-pay options
Gross Benefit of Strategically-focused elements	\$0	\$0	\$0 to \$50 million. (Expected case: \$35 million). <i>Note: By creating a strategically-focused project rather than tactically focused project, EWEB would focus on development of strategic benefits, but at the possible sacrifice of tactical benefits</i>
Net-Benefit of Strategic elements	\$0	\$0	-\$3 million to \$23 million NPV. Expected net benefit \$12 million NPV
Other Issues	Other Issues	Other Issues	Other Issues
Opt-in vs. Opt-out issues?	N/A	Opt-out option given to customers who wish to opt-out. Defaults is all other customers “opt-in” and are deployed quickly, but later.	Given the focus on developing and confirming strategic benefits, the deployment here is probably “opt-in” with early pilots and demonstration projects to test and assess the strategic programs. Once strategic programs and developed move toward larger scale roll out.

Summary of Significant Factors and Considerations	Alternative 0 “Status Quo” No AMI Project for at least 10 years	Alternative 1 “Tactically Driven AMI Project”	Alternative 2 “Strategically Driven AMI Project”
Implications for meter reading process and meter readers	No changes to process or job security for next 10 years.	Traditional meter reading process is replaced quickly with AMI. Some residual opt-out customers are read manually. Quick ramp-down of meter readers after big rollout and possibly 0 to 1 meter reading FTE for opt out customers after big rollout.	Traditional meter reading process is replaced more slowly with AMI. Some residual opt-out customers are read manually. Possibly a multi-year ramp-down of meter readers as slower rollout is completed. Possibly unknown meter reading FTE for customers that ultimately don’t opt-in.
Opt-in or opt-out tariffs?	N/A	Yes, cost-based opt-out tariff that reflects additional cost of manual meter reading after big roll-out is complete and opt-out class is established in size.	Yes, out-in and opt-out tariffs would reflect cost-based cost of AMI and manual meter reading after transition is complete.
Potential for real-time or near real-time information	No	Yes, with additional investments	Yes, included upfront.
Water Leak detection capability	No	Yes, included upfront.	Yes, included upfront.
Potential platform for advanced grid management and “smart grid	No.	Yes, with additional investments.	Yes, with additional investments.
Fit with negotiated Sensus AMI Contract?	No. EWEB would drop AMI contract and need to renegotiate new non-AMI contracts.	Yes, well aligned	No. Sensus AMI contract would have to be changed to conform to a different implementation, testing and deployment strategy.

Summary of Significant Factors and Considerations	Alternative 0 “Status Quo” No AMI Project for at least 10 years	Alternative 1 “Tactically Driven AMI Project”	Alternative 2 “Strategically Driven AMI Project”
<p>Conforms to current CIPs, budgets, long-term forecasts and rate projections.</p>	<p>No. This alternative would require modifications to all with the most significant change being slightly higher rates beginning in 2017 due to removal of the AMI benefit.</p>	<p>Generally, yes based on big deployment in 2017</p>	<p>CIPs, future budgets and long-term forecasts and rate projections likely would require some modifications. AMI project cost would be similar to alternative 1, but the pattern is likely different.</p>
<p>Pros</p>	<p>Simplest to execute No project risk No technology risk</p>	<p>Highest tactical benefit Easiest and cleanest AMI option (basically all in except opt-out) Provides customer choice. Lower future rate increases</p>	<p>Potentially highest overall benefit (tactical and strategic) Provides customer choice. Lower future rate increases Allows more focus on development of strategic benefits</p>
<p>Cons</p>	<p>Does not support EWEB’s strategic electric of water futures at all. No customer choice. Higher future rate increases.</p>	<p>Expect continued public controversy particularly around opt-out issues.</p>	<p>Expect less public controversy due to “opt-in” choice concept. Possible some sacrifice to tactical benefits.</p>

**RESOLUTION NO. 1811
FEBRUARY 2018**

**EUGENE WATER & ELECTRIC BOARD
A RESOLUTION AMENDING RESOLUTION NO. 1322
REGARDING ADVANCED METERING INFRASTRUCTURE**

WHEREAS, The EWEB Board of Commissioners approved Resolution No. 1322 on October 1, 2013.

WHEREAS, the Board has reviewed advanced metering benefits and implementation options at its February 6, 2018 meeting.

NOW, THEREFORE, BE IT RESOLVED by the Eugene Water & Electric Board that Resolution No. 1322, sections 1, 2 and 4 is amended as follows:

1. The Board hereby grants approval to the creation and execution of an Advanced Metering Infrastructure (AMI) project ~~using implementation strategy 2, as was presented to this Board on October 1, 2013;~~ and
2. In order to successfully deploy a working AMI system for both electric and water utilities, the Board directs the General Manager or his/her designee(s) to negotiate contract terms and documents with Sensus USA for the purchase of advanced metering equipment and services. ~~satisfying the Board selected implementation strategy.~~ AMI-project contracts are to be developed in conformity with ~~the Board's chosen implementation strategy and presented for approval before the Board as necessary and in accordance with~~ existing Board contracting and procurement policies and limitations., ~~including EWEB RFP No. 013-2011; and~~
4. Requires the General Manager and his/her designee(s) to execute the Advanced Metering Infrastructure project in accordance with ~~the AMI Statement of Principles adopted herein.~~ **all applicable EWEB policies and procedures.** Execution of the project include, but is not limited to, development of pilots, programs and tariffs, and to regularly apprise the Board regarding the progress made in the project. ~~Said execution shall conform to all EWEB policies and procedures.~~

Except as amended herein, all other provisions of Resolution No. 1322 remain in full force and effect. These amendments are prospectively effective upon adoption.

DATED this 6th day of February 2018.

THE CITY OF EUGENE, OREGON
Acting by and through the Eugene Water & Electric Board

President

I, ANNE M KAH, the duly appointed, qualified, and acting Assistant Secretary of the Eugene Water & Electric Board, do hereby certify that the above is a true and exact copy of the Resolution adopted by the Board at its February 6, 2018 Regular Board Meeting.

Assistant Secretary