

EUGENE WATER & ELECTRIC BOARD
WORK SESSION
EWEB BOARD ROOM
NOVEMBER 2, 2011
6:30 P.M.

Commissioners Present: John Brown, President; Bob Cassidy, Joann Ernst and Rich Cunningham

Others Present: General Manager Gray, Debra Smith, Tom Buckhouse, Andrea Mason, Jim Origliosso, Mike Logan, Matt Sprecher, Mark Freeman, Anne Kah, Mike McCann, Greg Armstead, Jill Hoyenga, Mel Damewood, Lance Robertson, Susan Fahey, Cathy Bloom, Tommy Williams, Sheila Crawford, Jeannine Parisi, Kathy Grey and Taryn Johnson of the EWEB staff; and Vicki Maxon, recorder.

President Brown convened the Work Session of the Eugene Water & Electric Board (EWEB) at 6:30 p.m. He noted that Vice President Simpson will not be present tonight due to illness.

UPDATE ON ADVANCED METERING INFRASTRUCTURE (AMI)

General Manager Gray recalled that a backgrounder memo had previously been sent to the Board and that tonight's presentation would consist mostly of discussion.

To recap, Mike Logan, Principal Project Manager, said that EWEB has installed 96 smart meters, including 16 employee volunteers' homes, 17 customer residences, and nine businesses. He said that John Femal, Energy Education Coordinator; Jeannine Parisi, Community and Local Government Outreach Coordinator; and Greg Armstead, AMI Project Manager, have been talking to customers and working with EWEB meter shop employees to participate in this collaborative effort. He added that 25 meters will be installed at more residences tomorrow, including those of Commissioners Brown, Cunningham and Ernst, but that there is still work to do in Commissioner Cassidy's neighborhood.

Commissioner Cunningham asked how long the pilot project would last. Mr. Logan replied it will last approximately one year, through August 2012, and that customers who have had smart meters installed will be taught a variety of things that can be done with their meter. He added that EWEB is working with the University of Oregon on research and an upcoming web portal that should be on line next week, so that customers who have smart meters can log in and have secure access to the web portal in order to monitor hourly usage information. He noted that once the University of Oregon has conducted their first survey, the web portal will be enabled for all participants. He added that eventually there will be an expected 114 participants in the AMI pilot program, including 20 employee volunteers, 80 customers, nine businesses that are collector locations, and the five Commissioner residences. He added that there are 21 home displays which will be furnished to some of the employee volunteers.

Commissioner Cunningham asked how smart metering might affect a volunteer's bill. General Manager Gray replied that there are many reasons why a bill could go radically up or down. He explained that any meter changeout can result in an error, whether one is changing to a digital meter or substituting an existing type of technology, or it can be a human meter reading error of the old read and the new read, or a variety of things. He said that the demonstration project will try to capture those kinds of events so that if and when EWEB goes to full roll-out, they will have thought about those things. He said a lot of lessons have been learned from other utilities about the kinds of things that lead to these errors, and the #1 cause of billing problems is actually human error (a misread) at the time the meter is changed out. People's bills change hundreds of percent on a normal basis between, for example, when we go from fall to winter heating season, if one has electric heat. For example, with the cool weather coming in, people who have relatively low electric bills will see their usage pop up dramatically, possibly several hundred percent. If a smart meter is put in right now, people could say the smart meter caused the jump in usage, but the reality is that the weather caused it; or in some cases, if there was a misread, that would be a contributing factor; or in very, very, very rare circumstances, it's a flawed meter.

Commissioner Cunningham asked how that would be rectified. General Manager Gray replied that processes will have to be built in to check customers' bills, for example, one doesn't necessarily compare this month's bill to last month's bill, but one might compare this month's bill this year to last month's bill last year, so one has a comparable period of time. Intelligence can be built into the system to say, for example, what was the weather like last year at this same time, and is the build-up normal or not.

Mr. Logan added that 71 meters have been tested so far. General Manager Gray noted that there are the normal factors for customers' bills to go up and down and there are anomalies, so one of the decisions staff will have to make in terms of roll-out is when they are rolled out. Generally speaking, rolling out smart meters the month before you know bills are normally going to be going up would be bad timing, because there would then be a normal increase in bills because of the cold weather, and customers will attribute that to the smart meter as opposed to the weather. He added that in some cases staff knows that there are some meters in the system that are under-reading, and when any kind of new meter goes in, that customer's bill will go up as a result of their under-reading in the past.

President Brown asked if he heard correctly that some electric meters will be pulled out and re-calibrated. General Manager Gray replied that is correct, and that his bigger concern is probably on the water side, as all water meters tend to slow down as they age, and some can slow down dramatically.

Commissioner Ernst asked how the meter continues to measure consumption, i.e., does it continue to round up or round down. General Manager Gray replied that it rounds up in some months and rounds down in some months, but it always rounds, and he noted that the billing unit that EWEB uses today is 1,000 gallons (KGAL), and that will probably be the future meter calibration. He added that the two most common billing units are KGALs or 100 cubic feet,

which is approximately 750 gallons, and that the rate would be very small if EWEB used, for instance, 10 gallons or 100 gallons.

Commissioner Ernst commented that the rounding is probably fairly general and she wondered if one would have the ability to get a re-read. General Manager Gray replied that on the electric side, because the electric meter has its own power source, EWEB can give data to a customer on a regular basis. For example, all of the Commissioners will have access to a web portal, and you will be able to go in and see your most recent usage on the electric side whenever they want, but on the water side, because water meters do not have a power source, the battery is the only power source, and the battery life would be dramatically reduced if the meter was read daily, hourly or twice a month. The current assumption is that it will be read once a month to preserve the batteries, but if a customer suspects they have a leak, the customer could be worked with remotely and asked to turn off all water sources and not flush the toilet, and don't run the washing machine, and then a couple of reads would be done a few hours apart. If there is a delta between those reads, then staff would tell the customer about a suspected leak and would ask them to consider hiring a plumber to confirm or deny that. He said that wouldn't be done on a regular basis on the water side just to actively seek leaks because the batteries would wear out very quickly, even though they are specialized lithium ion batteries that are supposed to last about 15 years. He noted that every time a meter is pulled, battery life is used.

Mr. Logan added that leak detection is one strong feature and that the information received from a reading is going to be more granular, on both the water and electric side. He added that the water side hasn't been added to the pilot program yet, but that staff is working with Water Operations staff to add a few sites, and he will be able to respond more intelligently to that in the future.

General Manager Gray then reviewed the backgrounder memo regarding the business case, and the three versions of the business case.

Commissioner Ernst noted that the AMR system contains a lot of tools and software where the customer can still call in and say that their bill is higher, and she wondered if a program can be installed to look at usage over time, which customers are using the most electricity, etc.

General Manager Gray replied that the software can monitor time of use and basic diagnostics and still present information to a customer, but only by phone, for example, and not via a home network.

Commissioner Ernst said she would like to understand the basic differences between phase 1 and 2 and that she was not clear on the expense for each phase. General Manager Gray replied that \$27,000 is budgeted for Phase 1 and \$13 million more is budgeted for Phase 2. He added that approximately \$27-33 million depends on the features that are installed, and that the low end of that price range would be a bare bones system and the high end would be if more features are added.

Commissioner Cassidy asked if the AMI pilot program includes meter reading. General Manager Gray replied that it is for electric meters only and that staff is considering adding a handful of water meters to the system to get experience with the water side.

Commissioner Cunningham asked if more than one smart meter manufacturer is being used. General Manager Gray replied that currently only one manufacturer is being used, but not because of any bias. He noted that Ellister has a really good demo “pilot in a box” type system and that there are 4-6 other manufacturers out there, but the pilot program doesn’t pre-determine any outcome.

Commissioner Cunningham then wondered if different manufacturers might offer different rebates. General Manager Gray replied that all of the various smart meters have different features and different functionality, and that a team will analyze them on multiple different bases. He explained that the first one will be a basic AMI and the next an AMI Plus, in order to look at all that can be done, for example, working with customers on a voluntary program to create offers for thermostats or water heaters, which then relates to resource management. He reminded the Board that EWEB’s recent Integrated Energy Resource Plan (IERP) Customer Advisory Committee recommendation was that the next decade be 100% dependent on conservation and demand response, and that if staff believes that added costs are critical to the future, EWEB will invest in them.

Related to the above comment regarding different types of smart meters having different features and different functionality, Commissioner Cassidy asked if EWEB will be involved in basic or future plans for that. General Manager Gray replied that all AMI meters have basic features with optional features that can be added. For example, Lane Electric Co-Op’s program did not include remote-initiated start and stop service, and EWEB staff believes that is necessary to have at the front end. He added that Lane Electric has a retrofit, actually a collar, which goes on the meter, and that EWEB is looking at integration up front. General Manager Gray continued, saying that it is more about the programs—demand response, subscriptions for different things like water heaters or electric vehicles, etc., and mainly a combination of communication and software options. He said that if EWEB believes they want to do demand response, that investment needs to be made and, if not, a decision can be made to forego the home area network card (a radio that communicates with the customer), which would save money up front, but the up-front decision needs to be driven by a vision.

Commissioner Cassidy asked if the radio waves are different between the basic program and the other programs.

General Manager Gray explained that that there are basically two frequencies--900 MHz and 2.4 GHz, and that the best comparison he can make is that many cell phones operate at 900 MHz and most cordless phones operate at 2.4 GHz, and that AMI meters operate at one of those two frequencies. He added that some meters operate on non-RFPs (called power line carriers), which rely on electric lines, but that EWEB isn’t considering that because of looking into the inclusion of water meters (which obviously do not operate off of a power line).

Commissioner Cassidy then asked if there are two different frequencies—basic and enhanced. General Manager Gray replied that there are not, and that a customer would have to invest in a HAN (Home Area Network) card, and that a basic system would communicate back to EWEB and the enhanced system with a HAN card would communicate with devices in the home. He added that the basic system would probably not use a HAN card because of wanting to communicate with customers, where all EWEB does is read the meters.

Commissioner Ernst asked for confirmation that the bare bones system without a network card is Phase 1, and that eventually there would be the ability to add on programming that would communicate both ways. General Manager Gray replied that is correct, and that the basic technology would be out in the field, and then features would be added. He reminded the Board that staff is thinking about AMI on the electric side only, with a no or slow role on the water side, and that the historical assumption has been that it wouldn't be economic to do this electronically. He said that the alternative would be to do this on the electric side and change the entire meter reading philosophy on the water side, as there is no compelling reason anymore to read water meters every month. He added that AMI for the water side is very expensive, but that the electric side seems to be a slam dunk for the business case, where the water side is a drag on the business case.

Commissioner Cassidy asked how staff would deal with the current water meters. General Manager Gray replied that labor costs to replace a meter are more expensive with water, and that staff runs into a lot of situations where the meter boxes' body and register are not simple. He asked Tom Buckhouse, Director of Electric, Water and Steam Operations, what the forecast is for water meter body replacement. Mr. Buckhouse replied that it is approximately 56%.

Commissioner Cassidy asked if some percentage would need to be replaced anyway, and General Manager Gray replied that is true, and that that should be done regardless of AMI, because EWEB's water meters on average are older than current recommendations.

President Brown commented that he recently went to the Western Area Power Association (WAPA) Quarterly meeting and heard that SMUD and other very large utilities have similar demographics to EWEB, and he wondered what EWEB could learn from them.

General Manager Gray replied that there have been no movers on the water side and that water-only utilities are really the hard business case. He said it is interesting that the most compelling business case for both electric and water sides is meter reading costs, and that EWEB's costs are low because of the density of EWEB's service area.

Commissioner Ernst wondered if EWEB would still have to replace water meters but could look at scenarios to spread out the cost under a different financial plan, for instance quarterly water meter reading in order to spread out the customers' water bills.

General Manager Gray replied that would probably involve an equal payment type of program, and that different utilities use different types of equal payment systems. He noted that

all of his own utility services (Lane Electric Co-Op and Northwest Natural Gas) are on an equal payment plan.

Commissioner Ernst asked for confirmation that Lane Electric sends their signal from the electric substation back to their control panel. General Manager Gray replied that it's called a power line carrier, and that it is sent from the electric substation back to their main office, but that the typical use is with more traditional telecommunication services.

Commissioner Ernst then asked if that reduces the amount of Wi-Fi. General Manager Gray replied that Lane Electric doesn't use Wi-Fi, and that for EWEB there are two reasons why EWEB would not use a power line carrier: 1) that it doesn't reach a water meter, and PLC and suburban environments can tolerate a lot more noise; and 2) in rural areas, their problem is signal repeat, where EWEB's problem is filtering out the noise. Mr. Logan added that signal strength is also an issue in relation to overhead and underground electric lines, and that EWEB has a lot of those transitions.

Commissioner Cunningham wondered if that could mean that the recommendation would be for the business case to move forward with electric and not water. General Manager Gray replied that there are three business cases staff is looking at: 1) that the basic case is clear so move forward; 2) the plus case is still being worked on; and 3) the minus case is still being worked on. He reminded the Board that the feedback staff is looking for tonight is whether or not staff is looking at the correct business cases.

Commissioner Cunningham commented that he is very impressed by the quality of tonight's AMI presentation, and if that presentation could be given to every neighborhood group in EWEB's service area, huge public sentiment could be grown, as he has seen residents do a 360 reversal in their opinion because of a staff presentation. He said he believes staff is on the right track and he has asked them to move forward and get comfortable with making a full recommendation in the future.

General Manager Gray commented that there is a lot of work to do on the customer side, and that if all EWEB did is read meters, they wouldn't have contact with the customer other than because of concern about radio frequencies. On the other hand, if EWEB goes with the AMI Plus business case with demand response and an effect on rates, etc., there would need to be a huge customer participation, information and education process, and that if EWEB is going to bank on customers as a critical resource, education is critical, as EWEB will have 88,000 electric and 55,000 water customers as part of the plan. He added that he could argue for the AMI Plus case but it still needs to be put together and the numbers still need to be crunched, and that if EWEB is banking its future on that, it needs the tools in order to support it.

Commissioner Ernst commented that she has been thinking about the topics that had been brought up tonight, and that she had read the triple bottom line (TBL) analysis by Good Company, and that she didn't know if they had been asked to write the report prematurely, but that it looks like they're right on track. She said she would like to see the business case but that she didn't recall seeing the focus group report.

Mr. Armstead replied that the AMI focus group report had been published, and General Manager Gray added that staff would re-send the focus group report to the Board.

General Manager Gray continued, saying that the AMI focus group findings were interesting and that there were five concerns, the biggest being the concern about “Big Brother” monitoring customer behavior. He said another question is should EWEB as a utility have an opt-out for a customer who is concerned about that very issue and that some utilities have adopted a proactive response to opt out, and that he believes EWEB should consider an opt-out option.

Commissioner Cassidy noted that EWEB’s charge for placing a door hanger for a final shutoff warning is \$25 and he wondered if there is an extra charge for a meter reader to read the meter in that instance.

General Manager Gray replied that this is a policy consideration that the Board will have to establish, because if half of EWEB’s customers want an opt-out option, AMI shouldn’t be done, but if a few hundred want to opt out, then the AMI business case will likely remain positive. He added that if those opt-outs cause additional expense that would be an inefficient meter reading route. Another question would be whether customers should bear that cost and should two residential tariffs be adopted, for example, with AMI remotely or with traditional meter reading, manually, as those costs would be pretty high. He said it would be his recommendation that each customer class should bear that cost.

Commissioner Cassidy repeated his question of whether it really does cost \$25 to send a connect/disconnect meter reader out to place a door hanger. General Manager Gray replied that it is very expensive to send someone out due to their hourly pay rate and also vehicle costs. He added that the other cost needing to be considered is the manual meter reading cost, especially for a non-traditional route. He said that instead of 50 cents to \$1.00 per meter, EWEB would be looking at a cost of \$10-15 per meter on that particular route.

Commissioner Ernst commented that she is in favor of the opt-out, and that staff could probably come up with some creative ways to keep the costs down. For example, if 100 customers opted out, there might be some program for them to read their own meter for 2-3 months, but that in the end, she agrees that the customer should bear the cost of opting out.

General Manager Gray commented that, assuming all customers have gone forward with AMI, there are things that can be done in the residence—controlling thermostats, turning off TVs, and all kinds of other myths. He reiterated that the current business case assumption is that everything done in a residence should be voluntary, and that there should be no Big Brother to create fear, nor is it economically rational, and that incentives are much more powerful than Big Brother.

Commissioner Ernst agreed, and she wondered how additional voluntary programs would impact the amount of employees required to service those options. General Manager Gray

replied that the real cost for options is in the technology used and how fancy the system is, and that there is no way that staff wants this program to be manual.

Commissioner Ernst then asked if more people will need to be hired to monitor the program, as there are only so many households that can be diagnosed at a time.

General Manager Gray replied that hypothetically a water heater program could be added, and that the cost of that program could be spread out for mandatory programs, but that would create a larger customer pushback. He said he believes that larger incentives and information regarding various options is the way to go, and that the real jump in cost from \$27 to \$33 million is related to how the customer and information systems costs are handled.

Commissioner Cassidy read an excerpt from the Board's backgrounder memo and asked what the "negative outcomes" are that should be mitigated. General Manager Gray replied that would be voluntary vs. involuntary participation and whether or not the program will be intrusive in the home.

Mr. Armstead added that a remote disconnect program might hamper low-income groups and other customers who are typically more affected by shut-off notices, and that the Good Company report had laid that out from a community perspective. He added that that is a rational concern and that staff ought to think about disconnect policies and how to proceed with them for low-income customers, and that those might be different from the current disconnect policies.

Commissioner Cassidy asked for some examples of some realistic "worst fears." Mr. Armstead replied that some of the "Big 5" concerns were fear of radio frequencies, mitigation (either we don't do it or go to a "PLC" option), or to work through community participation through education—smart meter vs. AMR vs. other risks.

Commissioner Cassidy commented that General Electric is going back to their original electric meters for people who are having trouble with radio frequencies. He wondered if that is something that could be done for the business case.

General Manager Gray replied that if a customer says they don't want a smart meter because of the radio signal, there is not much EWEB can do to the radio frequency to mitigate that concern. He added that science, reality, and smart metering contribute to the cumulative radio frequency factor, and that with some fears there may be mitigation and with some there may not be.

Commissioner Cunningham commented that it seems like everything always comes back to the TBL, but that he doesn't care about that, and that if General Manager Gray and staff's opinion is that AMI will help the ratepayers, that is what he will listen to. He said EWEB can't foresee whether AMI will work or not unless it is tried, and that he thinks the technology is there, and that this is the next logical step to get to the ultimate goal of the IERP.

General Manager Gray agreed, and added that EWEB's IERP, more than any other in the nation, will depend on this more, which is exciting and terrifying all at the same time.

Commissioner Cunningham commented that the Inconvenient Truth addresses that, and also that if one uses the energy of the planet wisely; one has to go into uncharted territory, "so let's go."

Regarding funding of AMI, General Manager Gray commented that the future Board decision is open right now, on whether to use reserves or cash for bonds. He said staff will come back to the Board with a comprehensive discussion regarding that, but that generally staff believes it is important to do AMI given the rate structures in the EWEB community, and that the business case should not include a rate increase.

President Brown commented that he would prefer no rate increase in the spring. General Manager Gray replied that in his opinion, AMI would cause short-term rate impacts, but that, again, radio frequency remains a concern among some customers, and that public information, awareness and education will be done and the results will be monitored carefully. He added that science and awareness will continue to be looked at and that it will be part of the TBL analysis in the end.

Commissioner Cassidy wondered how percentage of usage will be determined. General Manager Gray replied that it is possible that surveys will be conducted, as staff doesn't think a demo project can be used as an indication. He added that possibly scientific sampling may be done, and he referred to a survey that the Public Affairs Department is finalizing that asked some very high-level awareness questions regarding AMI and customer support for it. He said the conclusion is that there is very little customer awareness about smart meters, so there is a lot of education to do, but that it appears that the large majority of customers are either fine with AMI or don't know anything about it, and that only a minority are concerned about it.

Regarding page 3 under the Water Utility information, Commissioner Ernst opposed a fourth hybrid business case. General Manager Gray discussed the AMI Plus concept in a bit more detail. He asked the Board to give staff general feedback on the concept and its timing, and reminded them that a vote is not required tonight. He added that if EWEB goes out for a vote to issue bonds, there would be a push for implementation in 2014, but that the current business case is based on a late 2012/early 2013 implementation.

President Brown voiced concern about educating customers after the time that has already been spent on this project, and that there will be a huge learning curve. He also voiced concern that customers could lose this opportunity because of its complexity.

Commissioner Cassidy said he agrees completely with President Brown, and that it is not a yes or no question, and that opening the door for that would be "crazy."

Commissioner Ernst commented that in her opinion the important question is timing and the vote, and that since EWEB has surplus power, there is time to sit back and look at AMI and

its benefits and whether or not EWEB needs to jump into it right now, or instead to use surplus power and think about it some more. She added that even though there is surplus power, meeting peak demand could be a challenge, and AMI could help with that in a demand response (DR) program. She said she didn't know if DR could be developed without AMI in a way that EWEB would buy in the open market, and that she brought up the vote scenario because she wants people who have these systems to feel that they have a say, and not just by one means. She said she understood President Brown saying that he would hate to put it to a vote without education, but if you put it out there and get information in the voter's pamphlet with pros and cons, customers would see that information. She reminded the Board that they had talked about a vote at their last meeting and that they had said they wouldn't discuss it again until they saw the business case. She said she is in favor of what the Board wants to do with the timing General Manager Gray is proposing without a vote, but that she reserves the right to continue to look at a vote when the business case is presented.

Commissioner Cassidy wondered if the Board can take their time or if there is a schedule that is set in stone. General Manager Gray replied that public outreach is critical, especially in the AMI Plus case, and that he agrees that if there is a vote being considered, that is a whole different world. He reminded the Board that he is not asking for a final decision tonight, but rather what the assumption should be for purposes of developing the business case, and then he will go forward with a vote.

Commissioner Ernst indicated her agreement to do that.

Commissioner Cunningham said he is not in favor of a public vote for the reasons stated above, and that he is reminded of the West Eugene Parkway issue that voters approved twice, and both times the City of Eugene said they were wrong, and that if it had been approved, there would be a much better business model for north Eugene right now. He said he is in agreement with General Manager Gray to bring the project forward.

President Brown adjourned the Work Session of the EWEB Board at 7:30 p.m., asking for a five-minute break before the Regular Session begins.

Assistant Secretary

President