

STAFF REPORT

DATE: September 25, 2018

TO: City Council

FROM: Robert A. Clarke, Director of Public Works
Stan Gryczko, Assistant Public Works Director
Adrienne Heinig, Administrative Analyst

SUBJECT: Single-Family Residential Advanced Metering Infrastructure (AMI) Radio Transmission Unit Opt-Out Program

Recommendation

1. Receive staff report on the development and implementation of a single-family residential advanced metering infrastructure (AMI) radio transmission unit opt-out program.
2. Hold a Public Hearing on the proposed one-time and monthly fees for a single-family residential AMI radio transmission unit opt-out program.
3. Adopt the Resolution (Attachment 1) to approve the single-family residential AMI radio transmission unit opt-out program and amend the existing Citywide Fee Schedule to add the AMI Radio Transmission Unit Opt-Out Program fees.

Fiscal Impact

The costs associated with an opt-out program, estimated to be between \$500-\$5,000 annually to the water fund (depending on the number of households opting out), would be billed to the individual customer; these costs do not include staff time to develop the program. Set-up costs are estimated to be limited and covered by the existing FY 18-19 budget.

Council Goals

The development of an opt-out program for the automated transmission unit component of the city's overall AMI project does not address a specific City Council goal.

Background

In January 2018, the City began the implementation of the Advanced Metering Infrastructure project, CIP No. 8187. This project involves the replacement of all of the meters in the City, and a conversion to a fixed radio read system. This includes all residential, commercial, industrial and irrigation customers. Currently, West, Central and North Davis installations have been completed. Based on current contractor estimates, South Davis and El Macero installations will be completed before the end of the month of September. The installations involve two components: the replacement of the meter itself and the addition of AMI, a transmission unit connected to the meter.

To date, Public Works Staff has received 27 requests to opt-out of the AMI meter upgrades, all from residential customers. There are approximately 15,500 residential accounts (single and multi-family), and the number of opt-out requests to date represents 0.174% of the total. The

primary reasons that opt-outs have been requested are concerns over the radio frequency exposure from the meter communication device.

AMI uses a low-powered communication device to transmit hourly water usage information over a secure network approximately four times per day. The communication device is battery powered and is off most of the time. It turns on for only a fraction of a second per day (totaling approximately two and a half minutes per year). AMI devices are required to meet Federal Communications Commission (FCC) Radio Frequency limits. At eight inches from the front of the meter, exposure is almost 10,000 times lower than the 450-470 MHz FCC exposure limits. At two feet away, exposure drops to 90,000 times below FCC exposure limits. Benefits of this new technology include customer access to web-based water usage information, anticipated faster leak detection for homeowners, greater awareness of overall water usage, and decreased city costs by eliminating monthly meter read contract.

Discussion

AMI Opt-Out Programs:

City staff reached out to other jurisdictions in Northern California to review existing opt-out programs for AMI, and if offered, what their programs entail. Nine jurisdictions responded to the request, and of these, seven of them do not offer an opt-out option. This information is summarized in the table below:

Table 1: Agencies Offering Opt-Out Programs

Offer Opt-out	Do Not Offer Opt-Out
AMI For Water Meters	
Town of Hillsborough (<i>accommodates special requests for opt-outs by taking manual reads every other month for a year and then revisiting those accounts</i>)	City of Sacramento
Soquel Creek Water District	City of West Sacramento
	City of Woodland
	East Bay Municipal Utility District*
	Placer County Water Agency
	Sacramento Suburban Water District
	City of Santa Rosa

** Have not allowed opt-outs so far but have not had their full roll-out, approximately 10,000 meters have been replaced*

Meters and meter transmission units utilized by PG&E and SMUD (along with other agencies) associated with electricity and gas use, called “smart meters”, are required by the California Public Utilities Commission (CPUC) to have opt-out programs. The CPUC is the regulatory body for the private investor-owned utilities. The city of Davis is not regulated by the CPUC, and there is no legal requirement that the city offer an opt-out option. However, as the majority of residential electric and gas customers do have opt-out options, the city has looked at providing an opt-out option for its residential customers.

Opt-Out Process in Other Cities:

In the existing opt-out programs reviewed, any customer has the option to opt-out, but must make the request in writing and must be the customer on record for the utility billing account. Family members, neighbors or landlords cannot act on behalf of another customer. When a

customer opts-out, the AMI meter is replaced with a non-automated meter or the radio transmission module is removed. The monthly fee to opt-out covers the costs to manually read the meter and manually input reads into the billing system on a monthly basis. In one of the opt-out processes, customers were only allowed to opt-out or convert back to an AMI meter one time per service address, per calendar year. If a customer elects to convert back to the AMI program, the customer is charged the cost of the analog register, installation time, materials and a 15% administrative fee.

City of Davis Opt-Out Program Structure:

Program Cost

Costs for the program include the removal of the newly installed meter and automated meter transmission unit; the installation of a meter with touch-read capability, and Staff time (in Public Works and Finance Departments) to manually read the meters and enter the meter readings into the City’s financial system. The meters installed as a part of the City’s replacement program currently are not touch-read compatible, residents requesting an opt-out from the automated reader will therefore receive a credit toward the cost of the installation of the touch-read capable meter (the cost of the touch-read capable meter minus the cost of the previously installed AMI meter and communication device). Staff will monitor the technology associated with the new meters. Should the capability to convert them to touch-read become available in future years, Staff will revisit the one-time set up fee. It is important to note that all of the City’s water meters will be upgraded, as the existing meters have reached the end of their useful lives and require replacement, water customers will not have the option to retain their existing meter.

Ongoing monthly costs were calculated based upon conservative estimates of the costs for Public Works Staff time to mobilize to manually read the meters monthly, and Finance Staff time to manually enter the reads into the system.

The total cost for manual meter reads to each residential customer who elects to opt-out would be \$37 per month. This monthly charge would be in addition to their regular water bill. There would also be a one-time setup fee of \$92 due at installation. Opt-out costs would be re-evaluated after one year to assess actual costs based upon Public Works work orders and reports from Finance Staff and the monthly charge would be adjusted moving forward. The cost breakdown is in the table below:

Table 2: Program calculations for cost of City of Davis Residential Opt-Out Program

AMI Opt-Out Per Meter Charge	Description	Cost Breakdown
One-time setup fee of \$92	Removal of the meter and radio transmission unit, installation of touch pad and touch-read compatible meter. Customer is credited cost of AMI meter and radio transmission unit. Setup in billing system by Finance Department and Public Works staff.	Credit of \$150 from cost of meter and reader, taken from new cost of \$166 for touch-read capable meter. (\$16) 1 hour each for Water Distribution Operator, and Water Systems Maint. Worker, with F250 class (D2) truck for install. (\$53) ½ hour each for Accounting Assistant and PW Senior Office Assistant to enter new meter(s) and remove existing meters(s) in city systems. (\$23)

\$37 Monthly fee	Public Works staff will manually read meter each month via touchpad and record read. Finance staff will enter read into system for billing.	0.50 hour for Water Distribution Operator 1 to manually read and enter into the system, plus 0.50 hour for a F250 class (D2) truck. (\$14) 1 hour for Accounting Assistant to enter manual read from PR staff and upload to bill print file, includes quality control costs. (\$23)
\$14 Penalty Fee	If the meter cannot be accessed at the time of reading, an additional meter read fee of \$14 would be charged for each additional attempt to read the meter	
\$37 total monthly fee to customer	\$536 total annual cost to customer first year	\$444 total annual cost to customer subsequent years

City of Davis Opt-Out Program Process

Based on feedback from the City Attorney, Council can adopt the new program via a resolution to allow the ability for residential customers to opt-out of the AMI component of the meter upgrade, and to allow the City to levee a charge for the cost of reading the meter, which will be added to the City’s existing Fee Schedule. As the fee is an optional service, and it is not a property-related fee, it is not necessary to undergo a Proposition 218 process.

The opt-out program process shall be as follows: Customers that wish to opt-out will be required to fill out, sign and submit the Request and Agreement to Opt-Out of the Advanced Meter Infrastructure (AMI) Radio Transmission Unit (Attachment B) to the Public Works Department, for review by the Water Division Manager. Requests must be submitted by the property owner, or with express written permission of the property owner. After a review for completeness by the Water Division Manager, a work order will be issued for City staff to remove the AMI meter and radio transmission unit. A new touch-read capable meter will be installed. A letter will be sent to the customer from the Public Works Department, to indicate the change, and explain the opt-out charges that will appear on the customer’s bill. The paperwork will then be forwarded to the Finance Department, to add the additional opt-out fees to the customer account. The following month’s utility bill will reflect the new charges. Meters will be read monthly by Public Works Staff.

After one full year of opt-out services, costs for the program will be reviewed and re-assessed based on Public Works work order records and Finance HR costs.

Program Enforcement

In order for the customer to receive the touch-read capable meter, and maintain monthly touch reads, unimpeded access must be available for the replacement, necessary maintenance, and reading of the meter. If the meter cannot be accessed at the time of reading, an additional meter read fee of \$14 would be charged for each additional attempt to read the meter.

If the additional monthly fee is unpaid for two consecutive months, the City will determine that the opt-out is no longer requested by the homeowner and will reinstall the AMI meter and reader at city expense. Unpaid monthly charges and associated fees will be due. After the installation of the AMI meter and reader, the account will no longer incur additional monthly fees or penalties related to the opt-out program. Should the City replace the water meter due to non-payment of meter reading fees, the homeowner will not be permitted to re-enroll in the opt-out program at anytime.

Customer Water Management

It is important to note that meters manually read will not have the water usage information uploaded into the City's meter data management system, therefore these customers will not have access to their water use (including hourly information) in the City's AquaHawk customer water use portal. This creates missed opportunities for the homeowner to notice quickly if an issue, such as a water leak, does arise. Without hourly water use data, these types of issues can result in increased costs to the customer, as leaks are often identified one to two months after they have begun, when customers receive their bills.

Increased Outreach on the Safety of the AMI Readers

Studies reviewed by the water meter project team demonstrate that the risk of exposure related to the meter reading is extremely limited, and well within Federal Communications Commission (FCC) limits. In addition, the meter-reading device is only operational for a fraction of a second per day, for a total of 2 ½ minutes per year. Municipalities are moving towards automated readers for multiple reasons, including reduction in operations costs for meter reading, greater accuracy in water use billing, and the ability to assist property owners with water use management.

Frequently Asked Questions on AMI Radio Frequencies have been available in outreach materials on the meter project website, www.cityofdavis.org/watermeterupgradeproject, from the beginning of the project and were included as part of the overall FAQs. To address the recent specific concerns over radio frequencies, Staff has created and posted an expanded PDF on AMI Radio Frequency Frequently Asked Questions to the site. Staff has also added an additional section under benefits on the webpage to more prominently display the FAQs and radio frequency information. The FAQ sheet is included as Attachment 3 for informational purposes.

Attachments

1. Resolution
2. Request and Agreement to Opt-Out of the Advanced Meter Infrastructure (AMI) Radio Transmission Unit
3. AMI Radio Frequency Frequently Asked Questions

RESOLUTION NO. 18-XXX, SERIES 2018

RESOLUTION ESTABLISHING AN OPT-OUT OF THE ADVANCED METER INFRASTRUCTURE (AMI) RADIO TRANSMISSION UNIT PROGRAM FOR SINGLE FAMILY RESIDENTIAL UNIT HOMEOWNERS AND FEES

WHEREAS, the City of Davis provides water service to properties located within its service area, and has installed or is installing advanced metering communication devices (“AMI”) on properties within the City service area; and

WHEREAS, despite the widespread acceptance of the AMI devices, in California, a small set of customers have expressed interest in not having AMI devices installed and agencies offering smart communication devices for other utilities (gas and electrical power) offer opt-out programs; and

WHEREAS, the City has determined that single-family residential unit homeowners may request to opt-out from the installation of AMI technology on their property, and the City will approve such requests subject to the terms of the Request and Agreement to Opt-Out of the Advanced Meter Infrastructure (AMI) Radio Transmission Unit, including payment of a one-time installation cost and “Meter Reading Fee” to recoup the costs of granting these requests; and

WHEREAS, the Public Works Department has calculated the cost of providing Single-Family Residential Advanced Metering Infrastructure Radio Transmission Unit Opt-Out Program; and

WHEREAS, the City published a notice of a Public Hearing on the proposed fees and charges, at which meeting the City Council reviewed the proposed Single-Family Residential Advanced Metering Infrastructure Radio Transmission Unit Opt-Out Program fees and charges for services provided by the Public Works and Administrative Services Departments.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Davis does hereby adopt the Single-Family Residential Advanced Metering Infrastructure Radio Transmission Unit Opt-Out Program as described in the report to Council dated September 25, 2018, and incorporated herein by reference, and amends the existing Citywide Fee Schedule for Fiscal Year 2018-2019 to add the associated fees, attached hereto; and

BE IT FURTHER RESOLVED that the above amendments to the existing Citywide Fee Schedule shall become effective upon the adoption of this Resolution.

PASSED AND ADOPTED by the City Council of the City of Davis on this 25th day of September, 2018, by the following vote:

AYES:

NOES:

Brett Lee
Mayor

ATTEST:

Zoe S. Mirabile, CMC
City Clerk

Attachment 1
Single-Family Residential Advanced Metering Infrastructure Radio Transmission
Unit Opt-Out Program Fees

Charge	Fee
One-time Fee for Removal of Meter and Radio Transmission Unit and Installation of Touch-read Compatible Meter and Touch-read Component	\$92.00
Monthly Fee for Manual Read of Meter by Public Works Staff and Upload of Meter Read into Bill Print File by Finance Staff	\$37.00



Request and Agreement to Opt-Out of the Advanced Meter Infrastructure (AMI) Radio Transmission Unit

The City of Davis provides its customers a choice to opt-out of the radio transmission unit (AMI) on the new water meters. The AMI Radio Transmission Unit Opt-out Program is for single-family residential customers who voluntarily choose not to have the data collector/ transmitter installed with their water meter. The program allows customers to have their meter read manually at the end of every month provided the customer pays the added cost of manual meter reading set up and monthly meter reading to the City.

If you choose to opt out, the following charges will be added to your monthly water bill:

An initial setup fee of \$92.00; and
Meter reading fee of \$37.00 per month.

Please complete both Section A and Section B.

Section A: Customer and Account Information

* indicates required field

Customer of Record* _____

Account Number* _____

Service Address* _____

Daytime Phone #* _____ Email _____

Any meter access issues?* Yes No

Please indicate if gate is locked, dog, etc.* _____

All Acknowledgements and Agreements below must be signed by the Customer of Record for the account.

City Use Only:

Date Received: _____ Accountholder validation: _____ Staff: _____



Request and Agreement to Opt-Out of the Advanced Meter Infrastructure (AMI) Radio Transmission Unit

Section B: Acknowledgements and Agreements

Please sign and date all of the following:

I, the aforementioned customer of record for the account identified above, hereby request that the City of Davis remove the advanced metering infrastructure radio transmission unit from the identified service address in Davis, CA.

Signature* _____ Date* _____

I understand that I will be charged a one-time fee on my water bill for the set-up of my account to opt-out of the AMI radio transmission unit and that this fee is not refundable nor transferable to another address in the City.

Signature* _____ Date* _____

I understand that I will be charged a monthly meter reading fee on my water bill for the identified account and that this fee is not refundable nor transferable to another address in the City.

Signature* _____ Date* _____

I understand that the one-time fee and the monthly meter reading fee will be included in my monthly waster bill and will be due and payable at the same time and in the same manner as the other charges on my monthly bill and subject to the same fees, penalties and remedies in the event of delinquent or non-payment.

Signature _____ _Date _____

I understand that should I choose to stop participating in this opt-out program for the identified account that I cannot re-enroll in the opt-out program for a period of 12 months after the request for the identified account.

Signature* _____ Date* _____

I understand that annually the City may re-evaluate the cost of reading the meter for the identified account and that this monthly fee may change in the future.

Signature* _____ Date* _____



Request and Agreement to Opt-Out of the Advanced Meter Infrastructure (AMI) Radio Transmission Unit

I understand two months of non-payment of the meter reading fee will result in the city re-installing the AMI radio transmission unit at my property at the city's expense, and I cannot re-enroll in the opt-out program.

Signature* _____ Date* _____

I understand that I will not have access to water use data beyond the monthly data listed on my utility bill and that I will not have access to the customer water use portal.

Signature* _____ Date* _____

Please return the original, signed application to the City of Davis Public Works Department at the address below. Digital and facsimile copies will not be accepted.

City of Davis Public Works Department
1717 5th Street
Davis, CA 95616
Attn: Advanced Meter Infrastructure (AMI) Radio Transmission Unit Opt-Out Request

(530) 757-5686
PWWeb@CityofDavis.org

Water Meter Upgrade Project

AMI Radio Frequency Frequently Asked Questions

Q: Are there any health hazards associated with the new technology?

A: No. The equipment operates at a low-power radio frequency, comparable to a cordless telephone. All equipment operates in compliance with state and federal communication standards. Water meters are typically installed away from the house so potential exposure is very limited; the communication device only turns on for a fraction of a second per day (totaling approximately 2 ½ minutes per year).

Q: Do the AMI communication devices meet Federal Communications Commission (FCC) Radio Frequency (RF) limits?

A: Like all commercially available telecommunication equipment, the AMI communication devices are required to meet Federal Communications Commission (FCC) Radio Frequency (RF) limits. Equipment manufacturers have vigorously tested and reviewed independent lab results demonstrating that the communication devices meet or exceed FCC limits. Common household items like cell phones, microwave ovens, baby monitors, cordless telephones and Wi-Fi routers emit much more radio frequency energy than AMI meters.

Q: What is the frequency range for the radio communication devices?

A: The meter communication devices and the network communication system will operate in the 450 to 470 megahertz (MHz) bands. The technology products the City will use for its Advanced Metering Infrastructure project comply with U.S. Federal Communications Commission (FCC) guidelines for human exposure to RF energy (FCC OET bulletin 65).

Q: What are the key factors that contribute to RF Exposure from a communication device?

A: There are three key factors that contribute to RF exposure:

Signal duration: The communication devices connected to the water meters will normally transmit a signal for a fraction of a second per day or for a total of less than two minutes per year.

RF energy: The RF energy emitted by the AMI meter is considerably less than that from common items used every day that emit RF, such as laptops, tablets, cell phones, and baby monitors.

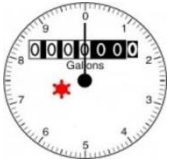







Distance from source: The communication device will be located in the same location as the water meter. When the device is transmitting the exposure level is thousands of times lower than the general population exposure limits set by the FCC:

- At eight inches from the front of the meter, exposure is almost 10,000 times lower than the 450-470 MHz FCC exposure limits;
- At two feet away, exposure drops to 90,000 times below FCC exposure limits.

Water Meter Upgrade Project

Q: How does the radio frequency of the AMI communications device compare to other common household devices?

A: Information on radio emissions from AMI water meters as compared to other common household radio sources was excerpted from the Automated Water Meter Program Radio Frequency Assessment conducted by the San Francisco Public Utilities Commission.

AMI Water Meter (Standing directly over the meter)	Wireless Router (at 3 feet)	Microwave Oven (5 minutes at 3 feet)	Smart Phone (data) (10 minutes at 8 inches)
			
 0.00010 microwatts per square centimeter	 0.37 microwatts per square centimeter	 0.45 microwatts per square centimeter	 0.98 microwatts per square centimeter

Q: Where can I learn more about radio frequency?

A: The sites/reports listed below address radio frequency:

- Health Impacts of Radio Frequency Exposure from Smart Meters (California Council on Science and Technology)
<https://ccst.us/publications/2011/2011smart-final.pdf>
- World Health Organization (WHO) Radio Frequency Fact Sheet
<http://www.who.int/peh-emf/publications/facts/fs304/en/>
- Federal Communications Commission (FCC)
<https://www.fcc.gov/general/radio-frequency-safety-0>
- Automated Water Meter Program Radio Frequency Assessment (San Francisco PUC)
<http://sfwater.org/modules/showdocument.aspx?documentid=12>
- American Cancer Society (Smart Meters)
<https://www.cancer.org/cancer/cancer-causes/radiation-exposure/smart-meters.html>
- Monterey County Health Department Review of Health Issues Related to Smart Meters
<https://www.nema.org/Technical/Documents/Smart%20Meter%20Safety%20-%20Marin%20Co%20CA%20whitepaper.pdf>



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 PWWeb@CityofDavis.org