

Tacoma Public Utilities/Tacoma Water (TPU) Areas Affected By Project

A. Tacoma Water Service Area includes locations within the following jurisdictions:

Cities: City of Tacoma
City of Bonney Lake
City of Federal Way
City of Fircrest
City of Lakewood
City of Puyallup
City of Ruston
City of University Place

Counties: Pierce County (including unincorporated areas)
King County (including unincorporated areas)

State: Washington State (all locations are within Washington State)

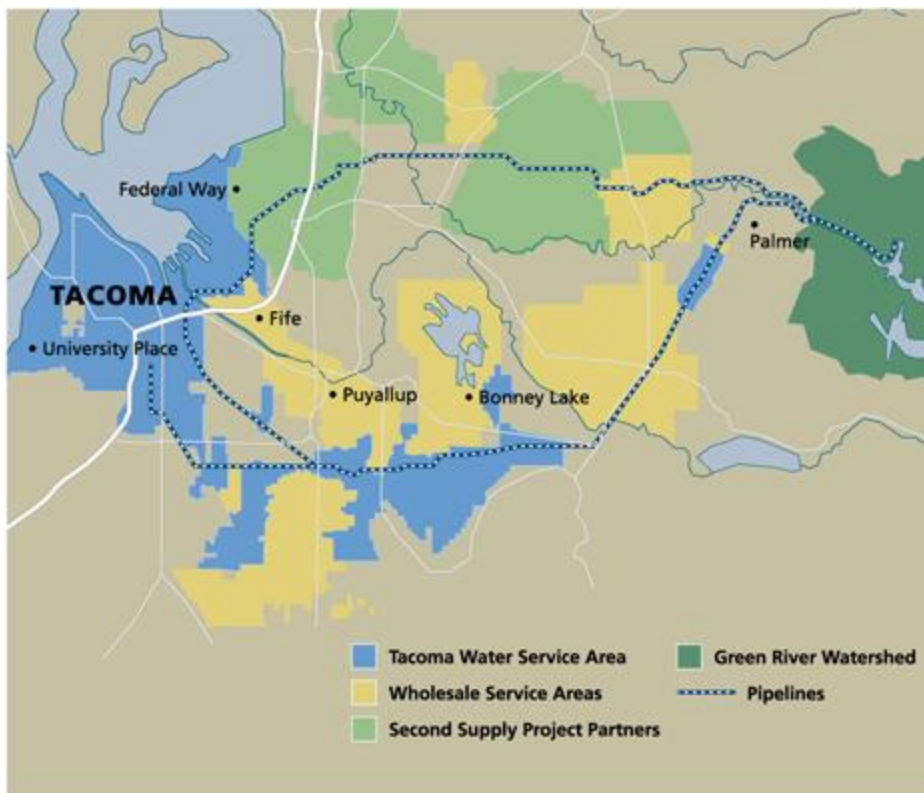


Figure 1: Tacoma Water Service Area Map

Tacoma Public Utilities/Tacoma Water (TPU) Congressional Districts

A. TPU Utility Administration Building (3628 South 35th Street, Tacoma, WA 98409):

Congressional District: WA-006

B. Tacoma Water Service Area:

Congressional Districts: WA-006
WA-008
WA-009
WA-010

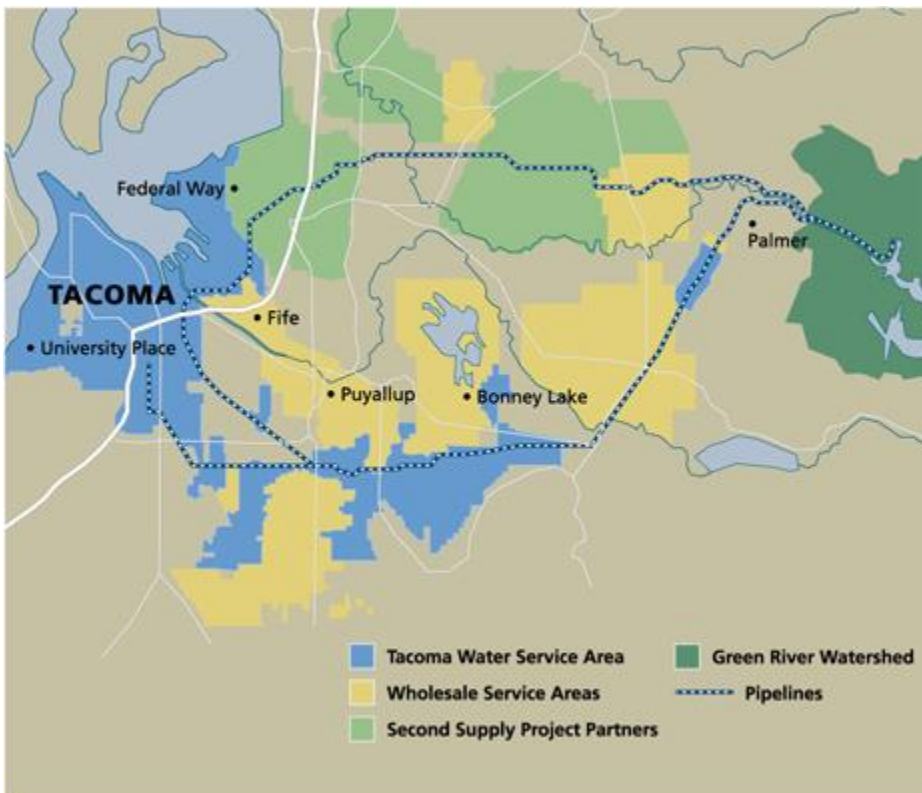


Figure 1: Tacoma Water Service Area Map

Advanced Metering Infrastructure Deployment Project

Grant Applicant



City of Tacoma, WA
Tacoma Public Utilities

Tacoma Water
3628 S. 35th Street, Tacoma, WA 98409

Project Manager: André Pedferri
3628 S. 35th Street, Tacoma, WA 98409
email: APedferri@cityoftacoma.org
phone: 253-502-8997

Submittal Date: September 17, 2020

U.S. Department of the Interior | Bureau of Reclamation
WaterSMART Grants:
Water and Energy Efficiency Grants for Fiscal Year 2021
BOR-DO-21-F001 | Funding Group II Application

ATTACHMENTS FORM

Instructions: On this form, you will attach the various files that make up your grant application. Please consult with the appropriate Agency Guidelines for more information about each needed file. Please remember that any files you attach must be in the document format and named as specified in the Guidelines.

Important: Please attach your files in the proper sequence. See the appropriate Agency Guidelines for details.

1) Please attach Attachment 1	<input type="text" value="1237-TPU WaterSMART WEEG AMI"/>	Add Attachment	Delete Attachment	View Attachment
2) Please attach Attachment 2	<input type="text"/>	Add Attachment	Delete Attachment	View Attachment
3) Please attach Attachment 3	<input type="text"/>	Add Attachment	Delete Attachment	View Attachment
4) Please attach Attachment 4	<input type="text"/>	Add Attachment	Delete Attachment	View Attachment
5) Please attach Attachment 5	<input type="text"/>	Add Attachment	Delete Attachment	View Attachment
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7) Please attach Attachment 7	<input type="text"/>	Add Attachment	Delete Attachment	View Attachment
8) Please attach Attachment 8	<input type="text"/>	Add Attachment	Delete Attachment	View Attachment
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10) Please attach Attachment 10	<input type="text"/>	Add Attachment	Delete Attachment	View Attachment
11) Please attach Attachment 11	<input type="text"/>	Add Attachment	Delete Attachment	View Attachment
12) Please attach Attachment 12	<input type="text"/>	Add Attachment	Delete Attachment	View Attachment
13) Please attach Attachment 13	<input type="text"/>	Add Attachment	Delete Attachment	View Attachment
14) Please attach Attachment 14	<input type="text"/>	Add Attachment	Delete Attachment	View Attachment
15) Please attach Attachment 15	<input type="text"/>	Add Attachment	Delete Attachment	View Attachment

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MANDATORY FEDERAL FORMS

The following forms were submitted electronically via grants.gov:

- SF-424 Application for Federal Assistance
- SF-424C Budget Information – Construction Programs
- SF-424D Assurances – Construction Programs
- SF-LLL Disclosure of Lobbying Activities

TECHNICAL PROPOSAL AND EVALUATION CRITERIA

Executive Summary

September 17, 2020

André Pedferri, Project Manager

Tacoma Public Utilities

Tacoma, Pierce County, Washington

A one-paragraph project summary that specifies the work proposed, including how project funds will be used to accomplish specific project activities and briefly identifies how the proposed project contributes to accomplishing the goals of this FOA.

Located on Washington's Puget Sound, the City of Tacoma, Tacoma Public Utilities (TPU) Water Division (Tacoma Water) plans to deploy over 107,000 water meters/modules as part of its Advanced Metering Infrastructure (AMI) Project. This effort supports TPU and Tacoma Water's long-term goal of water supply reliability and efficient water management. This application addresses the deployment activities and equipment costs associated with these water meters and modules, which will be coordinated with similar upgrades to TPU's electric meters. Prior AMI Project activities included preparation and planning, contracting, system integration and testing, as well as deployment of the fixed base network that will automatically collect and store hourly consumption data, aiding in water conservation and water use efficiency, improved water management, energy savings, and reduced carbon emissions. The AMI Project will lead to a number of efficiency improvements resulting in estimated water savings of 2,049.5 acre-feet per year (AFY) and an estimated average of nearly 24,000 gallons of gasoline per year in meter reading and maintenance vehicle consumption, and estimated carbon emissions reductions on the order of 36.2 metric tons of CO₂ per year. This project will also reduce the amount of water pumped out of the Green River and the energy savings associated with the pumping reduction. These water reductions benefit several threatened species including Bull Trout, Puget Sound Chinook, and Puget Sound Steelhead as well as the Muckleshoot and Suquamish Tribes that have fishing rights in these waters. The water conservation improvements are driven by: 1) The ability of the AMI system to better detect leaks and provide that information to customers to take prompt action, 2) The inclusion within the project of a Customer Portal that will provide customers with near real time information on their water usage so that they can make smart choices about their water usage, and 3) The replacement of water meters with more accurate meters that will better identify actual water usage.

State the length of time and estimated completion date for the project.

The meter deployment portion of the AMI Project for which funding is sought will start on October 1, 2020, and is scheduled to be completed by December 31, 2022, well within the three-year funding limit.

Whether or not the project is located on a Federal facility.

The AMI Project is not located on a Federal facility.

Project Location

Provide detailed information on the proposed project location or project area, including a map showing the specific geographic location. For example, {project name} is located in {state and county} approximately {distance} miles {direction} of {nearest town}. The project latitude is XXX and longitude is XXX

The City of Tacoma is located in Washington’s Puget Sound, 32 miles southwest of Seattle, 31 miles northeast of the state capital, Olympia, and 58 miles northwest of Mount Rainier National Park. The project latitude is approximately 47.22 and longitude is -122.44. Figures 1 and 2 are maps of TPU’s and Tacoma Water’s service area.

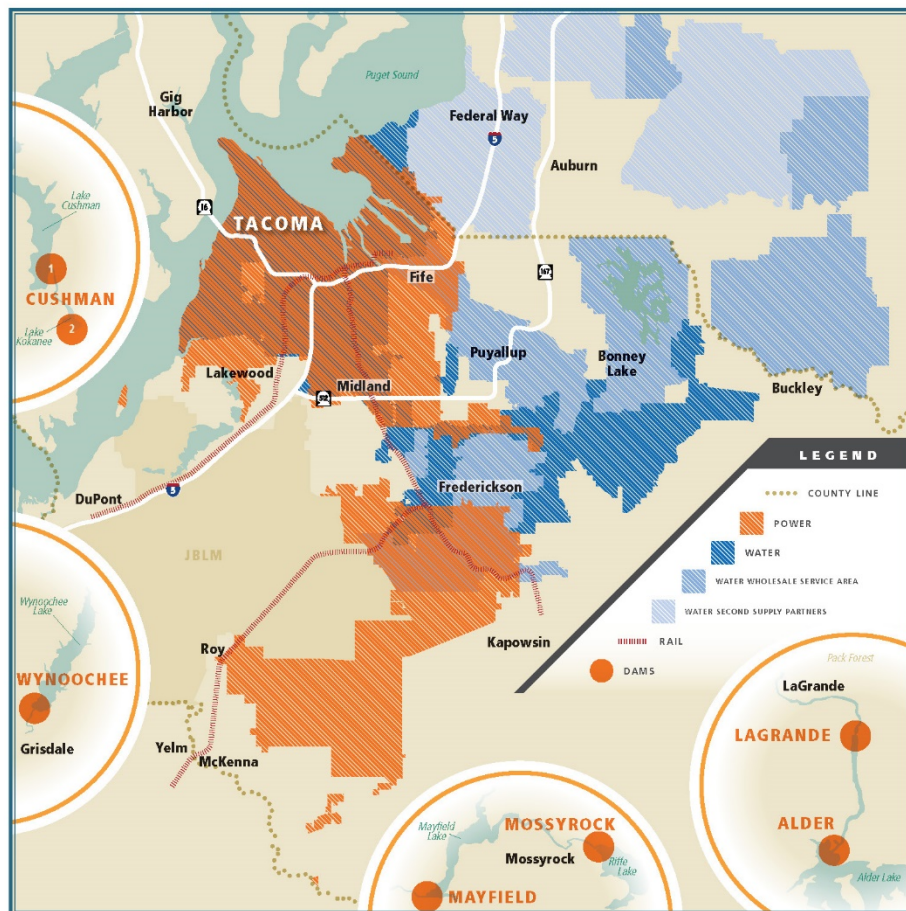


Figure 1. Project Location—TPU Service Area

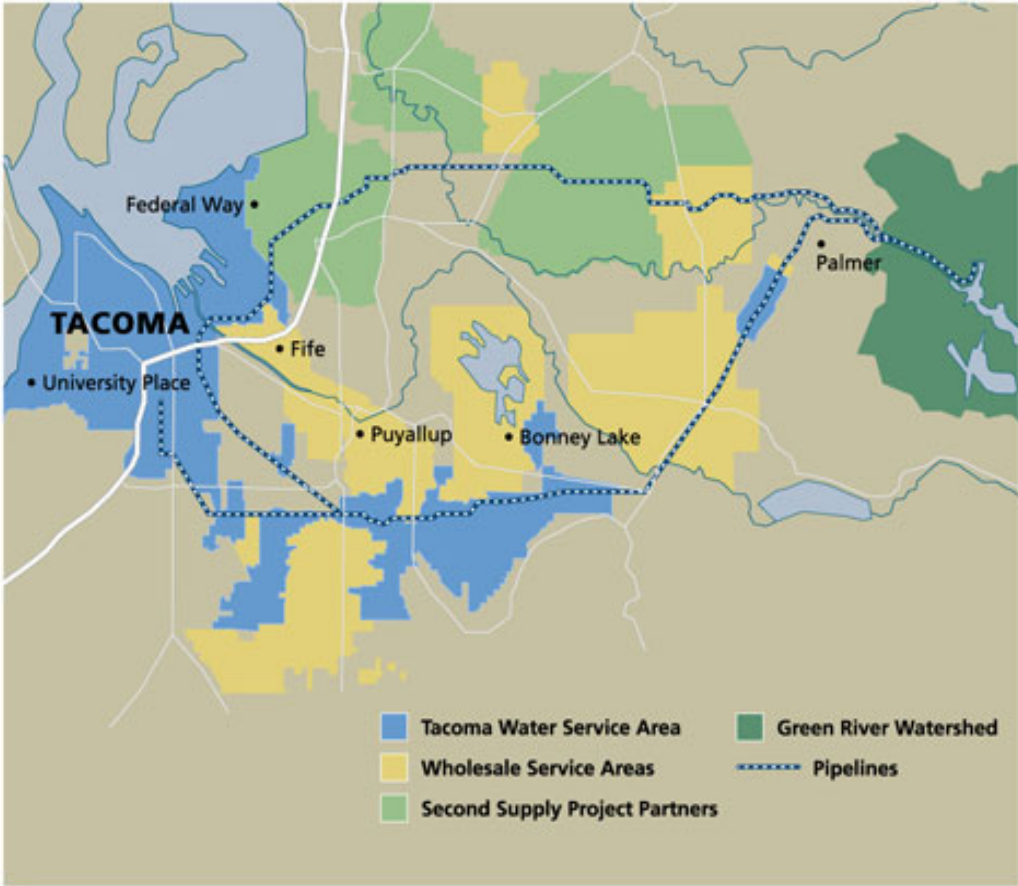


Figure 2. Project Location—Tacoma Water Service Area

Technical Project Description

Provide a more comprehensive description of the technical aspects of your project, including the work to be accomplished and the approach to complete the work. This description should provide detailed information about the project including materials and equipment and the work to be conducted to complete project. This section provides an opportunity for the applicant to provide a clear description of the technical nature of the project and to address any aspect of the project that reviewers may need additional information to understand.

With the completion of project planning, procurement, system integration and testing, as well as deployment of the fixed base wireless network that will enable two-way communication between meters and the supporting systems, TPU/Tacoma Water is now ready to deploy meters throughout the service territory. This application covers only the meter/module deployment activity. The deployment will be done in two phases. The first phase, referred to as Initial Deployment Area (IDA) deployment, will install 158 water meters/modules that cover all different meter types and sizes. Testing of these meters with the overall AMI system will be done to verify proper communication and data transfer across the system. Once these tests are completed, the second phase involving the mass deployment of meters will commence.

TPU has contracted with Sensus, a Xylem Inc. company, for the supply of the AMI meters and modules. Prior to receipt of any meters for deployment at customer locations, each meter type and size has gone through first article testing to verify that they are properly configured and meet all contractual requirements. At receipt of the deployment meters, sample testing is done to verify meter accuracy and proper identification prior to release for deployment.

Tribus Services Inc. has been contracted by TPU as the Meter Installation Vendor (MIV) and will be responsible for the bulk of meter/module installations. A small number of large, complex meters/modules will be installed by TPU/Tacoma Water staff due to their specific experience with those meters and the customers they serve. Installation of the water meters/modules involve first replacing the meter by isolating it from the water main, exchanging the meter, attaching the module, and threading the module antenna through a newly installed water meter pit lid that has a hole cut out for the antenna. Where the meter is being left in place, a retrofit will be done that involves only the replacement of the register and the addition of the antenna to support subsequent remote communications. There will also need to be some water box improvements made where there are issues with the placement of the new meter.

Once meters have been installed, they will begin to register and communicate using the fixed base network previously installed. TPU/Tacoma Water staff, with support of Sensus technical personnel, will verify proper registration and communication. Any issues identified will be addressed either by the MIV or TPU/Tacoma Water staff, as appropriate.

TPU will also provide project management oversight to the deployment effort to assure that cost, schedule, and scope are properly managed. TPU project management, with the support of a budget analyst, will also be responsible for reporting per the grant agreement.

Evaluation Criteria

*The evaluation criteria portion should be addressed in the technical proposal section of the application. Applications should thoroughly address each criterion and any sub-criterion in the order presented below. It is suggested that applicants copy and paste the below criteria and subcriteria into their applications to ensure that all necessary information is adequately addressed. **Applications will be evaluated against the evaluation criteria listed below.** If the work described in your application is a phase of a larger project, only discuss the benefits that will result directly from the work discussed in the technical project description and that is reflected in the budget, not the larger project.*

Note: Since the FOA is open to a variety of project types, Evaluation Criteria A-D may not apply to every project. For example, a water savings project (Criterion A) may not include implementation of a hydropower component (Criterion C). Please provide as much detail and support as you can for those criteria in A-D that are applicable to your project. All applicants should respond to Evaluation Criteria E-H.

Evaluation Criterion A: Quantifiable Water Savings (30 points)

*Up to **30 points** may be awarded for this criterion. This criterion prioritizes projects that will conserve water and improve water use efficiency by modernizing existing infrastructure. Points will be allocated based on the quantifiable water savings expected as a result of the project. Points will be allocated to give greater consideration to projects that are expected to result in more significant water savings.*

Describe the amount of estimated water savings.

For projects that conserve water, please state the estimated amount of water expected to be conserved (in acre-feet per year) as a direct result of this project.

Please include a specific quantifiable water savings estimate; do not include a range of potential water savings.

TPU/Tacoma Water's AMI deployment project is expected to result in a large amount of water and greenhouse gas savings. Tacoma Water expects the project to conserve 2,049.5 acre-feet per year (AFY). The meter deployment is also expecting to see approximately 36.2 metric tons of CO₂ savings. Additional energy savings related to a reduction in water production is anticipated but was not quantified.

Describe current losses.

Please explain where the water that will be conserved is currently going (e.g., back to the stream, spilled at the end of the ditch, seeping into the ground)?

There are three sources of conserved water accounted for in this application. They are:

- The ability of the AMI system to better detect leaks and provide that information to customers to take prompt action,
- The inclusion within the overall AMI project of a Customer Portal that will provide customers with near real time information on their water usage so that they can make smart choices about their water usage, and

- The replacement of water meters with more accurate meters that will better identify actual water usage.

These sources of conserved water are all on the customer side of the meter. As such, the water is primarily seeping into the ground, entering storm drains, or leaking directly to wastewater treatment (due to outdated fixtures and appliances).

Describe the support/documentation of estimated water savings:

Please provide sufficient detail supporting how the estimate was determined, including all supporting calculations. Note: projects that do not provide sufficient supporting detail/calculations may not receive credit under this section. Please be sure to consider the questions associated with your project type (listed below) when determining the estimated water savings, along with the necessary support needed for a full review of your proposal. In addition, please note that the use of visual observations alone to calculate water savings, without additional documentation/data, are not sufficient to receive credit under this section. Further, the water savings must be the result of reducing or eliminating a current, ongoing loss, not the result of an expected future loss.

Detail to support the estimates provided are included in response to item (2) Municipal Metering, question a, below.

Please address the following questions according to the type of project you propose for funding.

*(2) **Municipal Metering:** Municipal metering projects can provide water savings when individual user meters are installed where none exist to allow for unit or tiered pricing, when existing individual user meters are replaced with advanced metering infrastructure (AMI) meters, and when new meters are installed within a distribution system to assist with leakage reduction. To receive credit for water savings for a municipal metering project, an applicant must provide a detailed description of the method used to estimate savings, including references to documented savings from similar previously implemented projects. Applicants proposing municipal metering projects should address the following:*

a. How have average annual water savings estimates been determined? Please provide all relevant calculations, assumptions, and supporting data.

As noted in earlier, there are three sources of conserved water accounted for in this application:

- The ability of the AMI system to better detect leaks and provide that information to customers to take prompt action,
- The inclusion within the overall AMI project of a Customer Portal that will provide customers with near real time information on their water usage so that they can make smart choices about their water usage, and
- The replacement of water meters with more accurate meters that will better identify actual water usage.

Specific details related to each source are detailed below.

Improved Customer-Side Leak Detection

Tacoma Water's AMI deployment project includes meters that can detect very low flow down to portions of a gallon. All of the recorded flow is transmitted to systems that have algorithms to identify possible leak conditions based on a constant flow over an extended period of time, usually 24 hours or greater. When these possible leak conditions are found, alarms and event flags are generated that result in notifications to customers of the leak condition. This technology allows for a vast improvement over current methods of detecting leaks that rely on customers noticing a leak condition that has likely existed for days to weeks or noticing that a leak condition exists as a result of a higher than expected bill.

The USEPA WaterSense website references a 2016 Water Research Foundation Residential End Uses of Water Report that indicates the average residential customer has 12% of their water use attributable to leaks. For an average residential water usage of 300 Gal/Day, this equates to 36 Gal/Day/Customer Meter lost due to leakage. These results are similar to the Water Research Foundation's "California Single-Family Water Use Efficiency Study" (2016), which documents an average leakage rate of 30.7 gallons per household per day for a California study group from 2005. Using the lesser average leak rate for conservatism, this equates to leakage of:

$$30.7 \text{ gal/day/meter} \times 365 \text{ day/yr.} \times 3.06889\text{e}^{-6} \text{ acre-feet/gal} = \mathbf{0.0344 \text{ AFY/meter}}$$

It is then necessary to determine how much of that leakage is likely to be saved through AMI leak detection technology. Valor Water Analytics partnered with Southern California Gas Company and two water utilities in 2016-2018 to track AMI utilization in water savings. Two pilot projects were commissioned by the California Public Utilities Commission. The main purpose of these pilots was to develop a "nexus calculator" that could equate water savings to energy savings. As part of the study, though, as documented by Newport Beach in their FY2020 WaterSMART grant application, analysis was also done on the effectiveness of AMI leak detection analytics. Valor provided customer leak analytics and the water utilities sent out leak notifications via phone and text to customers upon leak detection. The second pilot (with more conservative results), conducted at a coastal Southern California water utility, involved comparing 1,190 accounts with new AMI meters and AMI hourly water reads (treatment group) and 1,190 accounts with existing meters and monthly meter reads (control group) over a 12-month period. During the pilot, it was reported that 188 water leaks were detected by AMI analytics and a total of 3,508,520 gallons of water savings due to leak reduction by AMI analytics was estimated. This equals an average water savings of 2,948 gallons/meter-year (3,508,520/1,190). This equates to water savings from detected leaks of:

$$(3,508,520 \text{ gal/year} / 1,190 \text{ meters}) \times 3.06889\text{e}^{-6} \text{ acre-feet/gal} = \mathbf{0.00905 \text{ AFY/meter}}$$

Assuming that these 1,190 meters had average water usage and average leakage described above, this would equate to AMI efficiency in detecting leaks of 26.3% (0.00905/0.0344). This AMI efficiency results in a significant water savings for Tacoma Water with their 102,470 residential (5/8", 3/4", and 1") meters:

$$0.0344 \text{ AFY/meter} \times 26.3\% \times 102,470 \text{ meters} = \mathbf{927.1 \text{ AFY in Leak Detection savings}}$$

Customer Water Usage Reduction Through Use of a Customer Portal

As part of the overall AMI project, TPU is providing a portal to customers so that they can view their hourly consumption data and receive customer configurable alerts when they pass certain thresholds of use, particularly those that would put them into a higher rate class for additional water consumed. This is a vast improvement over current practice that would not make the customer aware of their usage until they received their bill—too late for them to take any action to curb their usage for that billing period.

Eastern Municipal Water District (EMWD), a wholesaler of water in Southern California, completed a demonstration project that included a Customer Portal like the one being implemented by TPU. For the demonstration project, EMWD installed AMI units for a subset of its customer base, included daily water use information on customer water bills, and made flow data available to customers via the customer portal on EMWD’s website. EMWD determined that implementation of the demonstration project realized an average annual savings of 0.027 AFY per meter across all meters.

TPU will aggressively market the customer portal to its customers, but likely uptake by customers will start at 25% or less. To calculate water savings from use of the portal, TPU assumes a 20% subscription rate to the portal. For purposes of this calculation, the application of the portal will be limited to residential customers, even though, in practice, the portal will be available for all users. These conservative assumptions result in the following water savings:

$$0.027 \text{ AFY/meter} \times 20\% \times 102,470 \text{ residential meters} = \mathbf{553.4 \text{ AFY in Portal Water Savings}}$$

Improved Accuracy of Meters

TPU/Tacoma Water reports unaccounted for water in the system on an annual basis using American Water Works Association (AWWA) guidelines. This unaccounted for or lost water compares the amount of water produced to metered water and authorized non-metered usage. In 2019, the reported lost water was 3,805 AFY. A portion of that loss is due to the reduced accuracy of meters as they age. To determine the effect of the loss of meter accuracy in the Tacoma Water system, tests were completed to verify the accuracy of different ages of meters used in the system. A summary of those results is provided in the Table 1 below with 100 being an indication of perfect accuracy. Values greater than 100 indicate over registration whereas values less than 100 indicate loss of accuracy resulting in unreported water flow:

Table 1. Meter Accuracy Loss by Age

Age Range	Low Average	Medium Average	High Average
0	99.905	101.1	99.8225
5	97.69693878	99.35510204	98.26836735
10	91.3746988	99.97951807	99.23373494
15	91.35970149	99.24477612	99.27238806
20	70.92424242	98.39666667	98.83787879
25	66.15	98.202	97.37
30	64.09090909	95.22727273	96.66363636

You can see by the results, that in addition to age impacting the meter accuracy, flow also is a factor. To determine the flow characteristics of a typical household to determine accuracy relative to flow, a study documented in the *Water & Wastes Digest* was used (<https://www.wwdmag.com/meters/determining-economical-optimum-life-residential-water-meters>).

Table 2 shows this study determined the normal distribution of flow in a typical household as:

Table 2. Typical Household Normal Distribution Flow

	Low – Flow (0 – 0.25 GPM)	Med – Flow (0.25 – 2 GPM)	Hi – Flow (> 2 GPM)
% of overall flow	12%	86%	2%

To further clarify, these results determined that 12% of the flow is at a low flow rate, 86% of the flow is at a medium flow rate, and just 2% of the flow is at a high flow rate. The following formula was then used to determine the real accuracy of the meters across all flow rates:

$$\text{Real Meter Accuracy} = (\text{MRL} \times \text{pul}) + (\text{MRM} \times \text{pum}) + (\text{MRH} \times \text{puh})$$

Where:

- MRL – Meter Read Accuracy at Low Flow
- MRM – Meter Read Accuracy at Medium Flow
- MRH – Meter Read Accuracy at High Flow
- pul – Pattern of Use at Low Flow
- pum – Pattern of Use at Medium Flow
- puh – Pattern of Use at High Flow

Using the data presented above for 30-year old meters, the Real Meter Accuracy would be calculated as follows:

$$\text{Real Meter Accuracy}_{30} = (64.09 \times 0.12) + (95.23 \times 0.86) + (96.66 \times 0.02) = 91.52$$

A complete table of the Real Meter Accuracy results for the meters tested is provided in Table 3:

Table 3. Real Meter Accuracy Results

Meter Age (Yrs.)	Real Meter Accuracy (%)
0	100.93
5	99.13
10	98.93
15	98.30
20	95.11
25	94.34
30	91.52

With the knowledge of residential meter counts (5/8", 3/4", and 1") across the different age categories along with the consumption in each of those categories, it is then possible to determine the amount of water loss associated with meter accuracy using the following formula:

$$\text{Water Loss for Meter Age} = \# \text{ of Meters} \times \text{Consumption} \times \text{Real Meter Accuracy}$$

Table 4 shows the water loss across all meter age categories.

Table 4. Water Loss Across All Meter Age Categories

Meter Age (Yrs.)	# of Residential Meters	Consumption for Meter Group (AFY)	Real Meter Accuracy	Water Loss (AFY)
0	12,221	N/A	100.93	N/A
5	8,676	1,673	99.13	14
10	21,785	4,201	98.93	45
15	19,038	3,671	98.30	62
20	14,176	2,734	95.11	134
25	12,045	2,323	94.34	131
30	11,120	2,144	91.52	182
TOTAL	99,061 ¹	19,103		569

¹ Note that the total of 99,061 was the total number of meters at the time of the study. The current meter total is 102,470, but for conservatism and to specifically align with the study results, the 99,061 number of meters was used in calculating the AFY.

In conclusion, **meter accuracy improvements will result in the water savings of 569 AFY.**

Total Water Savings from deployment of the AMI system will be:

Leak Detection Savings	927.1 AFY
+ Portal Usage Savings:	553.4 AFY
+ Meter Accuracy Savings:	569 AFY
= Total Water Savings:	2,049.5 AFY

Electric and Carbon Savings

In addition to the Water Savings described above, TPU expects to see significant carbon reductions as a result of the AMI deployment project and energy savings related to a reduction in water production.

Tacoma Water has electricity usage from all of its processing and pumping facilities. As a result of the reduction in the amount of water being processed and pumped, there will be a

corresponding reduction in electricity usage. Tacoma Water has not tracked granular pumping and facility power usage data to specifically calculate this electricity savings.

There will also be additional electricity savings from the portion of the residential water savings that is hot water, reducing the amount of electricity and/or gas energy that is necessary to heat that water.

This project also creates carbon emissions savings through reduced truck rolls to read meters and to visit customers to address usage issues and complaints that can now be resolved through phone discussion of usage data or customer portal information. Conservatively assuming that the average miles per read truck roll is 0.1 mile, the average miles per visit truck roll is 1 mile, the effective miles per gallon of gasoline is 18 mpg, there are 6 bi-monthly readings per meter per year, there are also approximately 10,000 customer visits per year with a 90% effectiveness in resolving issues without a truck roll, and there is 0.008887 metric tons of CO₂ per gallon of gasoline, the metric tons of CO₂ saved per year can be determined:

$$0.1 \text{ mile/meter read} \times 6 \text{ reads/year} \times 107,223 \text{ modules} = 64,334 \text{ miles for reads/year}$$

$$1 \text{ mile/meter issue} \times 10,000 \text{ issues/year} \times 0.9 \text{ (efficiency in resolving)} = 9,000 \text{ miles/year}$$

$$(64,334 + 9000) \text{ miles/year} / 18 \text{ mpg} = 4,074 \text{ gal. of gasoline/year}$$

$$4,074 \text{ gal/year} \times 0.008887 \text{ metric tons of CO}_2/\text{gal.} = \mathbf{36.2 \text{ metric tons of CO}_2/\text{year}}$$

b. How have current distribution system losses and/or the potential for reductions in water use by individual users been determined?

The potential for reductions in water use by individual users has been determined as described in response to the above question. Distribution system losses are not included in the water savings discussed in this application.

c. For installing end-user water service meters, e.g., for a residential or commercial building unit, refer to studies in the region or in the applicant's service area that are relevant to water use patterns and the potential for reducing such use. In the absence of such studies, please explain in detail how expected water use reductions have been estimated and the basis for the estimations.

The basis for expected water use reductions is included in the responses to question a. of this section. For the determination of meter accuracy related savings, a Tacoma Water study of meter age to consumption was used. Otherwise, no specific study was available for the specific State of Washington, Puget Sound area. As such, studies were used that relied on data from other West Coast areas or in general across the country. Because of potential differences in these studies compared to specific water use patterns in the Puget Sound area, additional conservatism in calculations was used to not overestimate potential water savings.

d. Installation of distribution system meters will not receive points under this criterion. Accordingly, these projects must be paired with a complementary project component that will result in water savings in order for the proposal to receive credit for water savings, e.g., pipe installation using upgraded materials, or individual water service meters.

Not applicable. No AMI distribution main meters will be installed.

e. What types (manufacturer and model) of devices will be installed and what quantity of each?

The AMI deployment project will replace 105,696 existing meters with Sensus meters of the type and size described in Table 5 below. In addition, 1,527 meters will not be replaced but retrofitted to support AMI. TPU will be communicating with the meters using Sensus' FlexNet AMI system, a fixed-base technology system that will automatically collect and store hourly consumption data, aiding in water conservation and water use efficiency, improved water management, and energy savings.

The meters and retrofit kits described above will be installed in the sizes and quantities shown in Table 5 below. These are approximations known at this time and match the budgeted figures provided in the Project Budget. Actual installed numbers may differ as a result of growth or contraction of the customers within the service territory. Any changes in quantities will be handled via change order. All meters, registers, nodes, and boxes, etc. will be installed by Tribus and/or TPU/Tacoma Water.

Table 5. Water Meter Types and Quantities

Sensus Water Modules (per contract)	107223
Sensus Water Meters (per contract)	105696
5/8" Positive Displacement Water Meters	97500
3/4" Positive Displacement Water Meters	2480
1" Positive Displacement Water Meters	2490
5/8" Ally Remote Disconnect Meters	205
3/4" Domestic Fire Meters, Electric Driven	60
1 1/2" Water Meters	1733
2" Water Meters	1002
3" Water Meters	142
4" Water Meters	39
6" Water Meters	22
8" Water Meters	17
10" Water Meters	5
16" Water Meters	1

f. How will actual water savings be verified upon completion of the project?

As described previously, TPU/Tacoma Water reports unaccounted for water in the system on an annual basis using American Water Works Association (AWWA) guidelines. This unaccounted for or lost water compares the amount of water produced to metered water sales and authorized non-metered usage. After completion of the AMI deployment, TPU/Tacoma Water will analyze the results of the report along with demand forecasts of expected demand over the period that include other conservation efforts but not specifically AMI. This will enable TPU/Tacoma Water to identify specific reductions in the amount of metered water sales, in unaccounted for or lost water, and in demand that is the result of AMI deployment.

Evaluation Criterion B: Water Supply Reliability (18 points)

Up to 18 points may be awarded under this criterion. This criterion prioritizes projects that address water reliability concerns, including making water available for multiple beneficial uses and resolving water related conflicts in the region.

Note that an agreement will not be awarded for an improvement to conserve irrigation water unless the applicant agrees to the terms of Section 9504(a)(3)(B) of Public Law 111-11 (see p. 52 of the FOA for additional information).

Please address how the project will increase water supply reliability. Proposals that will address more significant water supply shortfalls benefitting multiple sectors and multiple water users, will be prioritized. General water supply reliability benefits (e.g., proposals that will increase resiliency to drought) will also be considered. Please provide sufficient explanation of the project benefits and their significance. These benefits may include, but are not limited to, the following:

1. Will the project address a specific water reliability concern? Please address the following:

Yes. See answers to questions below for a complete explanation of the concerns and how the AMI deployment project will help to address those issues.

Explain and provide detail of the specific issue(s) in the area that is impacting water reliability, such as shortages due to drought, increased demand, or reduced deliveries. Will the project directly address a heightened competition for finite water supplies and over-allocation (e.g., population growth)?

A 2016 study by the Puget Sound regional Water Supply Forum indicated that “System modeling suggests that Tacoma Water’s existing supplies would be able to meet 2015 and 2035 forecast demand levels under hot, dry summer conditions if the historical hydrologic drought of 1987 were repeated. Additional modeling indicated that if inflows to the system were 26 percent below 1987 levels, then demands would not be met, even with use of Tacoma Water’s wells, switching to lowest allowable minimum instream flows, and reducing demands through customer curtailments.”

The study concluded that “information available from past planning efforts regarding potential regional measures, along with the anticipation that other resiliency evaluations may identify a need for regional mitigation strategies, prompted the Drought Team to assess how various

measures might enhance drought resiliency.... Potential measures identified include developing new sources of supply, expanding storage, constructing interties between systems, implementing operational modifications, reducing demand, and using reclaimed water.” An AMI project would specifically address demand reduction. In fact, Tacoma Water’s 2018 Water Conservation Report states that “the long-term vision for their conservation plan includes... continued improvement of programming as they go through changes in customer needs, supply scenarios and improvements in technology (e.g., AMI). A specific strategic goal of Tacoma Water is to leverage technology which comes into play when new technology such as AMI is available to improve the customer experience (faster leak detection, water use alerts, etc.)”

The AMI project directly addresses a heightened competition for finite water supplies through reducing the demand for those supplies.

Describe how the project will address the water reliability concern? In your response, please address where the conserved water will go and how it will be used, including whether the conserved water will be used to offset groundwater pumping, used to reduce diversions, used to address shortages that impact diversions or reduce deliveries, made available for transfer, left in the river system, or used to meet another intended use.

The water saved through the AMI deployment project will decrease demand and require less of a draw of water from the Green River, Tacoma Water’s primary source of water—allowing the water to be left in the river system. The project will also reduce the need for groundwater pumping from wells that serve as the backup source for water in times of water shortages. This will directly support Tacoma Water’s Conservation Plan and will add to the resiliency of the entire Puget Sound region against possible future severe drought conditions.

Provide a description of the mechanism that will be used, if necessary, to put the conserved water to the intended use.

No specific mechanism will be necessary to put the conserved water to the intended use. The conserved water will simply be left in the river system and ground wells for environmental benefit or use by others.

Indicate the quantity of conserved water that will be used for the intended purpose.

The AMI deployment project will conserve an estimated **2,049.5 AFY and 40,990 AF over the 20-year useful lifespan of the AMI system.**

2. Will the project make water available to achieve multiple benefits or to benefit multiple water users? Consider the following:

Will the project benefit multiple sectors and/or users (e.g., agriculture, municipal and industrial, environmental, recreation, or others)?

Yes, see the specific environmental and recreational benefits per the answers to the follow up questions below. In addition, industrial customers of TPU/Tacoma Water will definitely benefit from the AMI deployment project. Considering the large amounts of water and electricity that many industrial customers require, the detailed consumption information that will be available

to them through the AMI system will allow them to better manage their water and electricity costs involved in the production of their products.

Will the project benefit species (e.g., federally threatened or endangered, a federally recognized candidate species, a state listed species, or a species of particular recreational, or economic importance)? Please describe the relationship of the species to the water supply, and whether the species is adversely affected by a Reclamation project.

Over 30 fish species currently inhabit the Green River, the primary source of water for Tacoma, including three Endangered Species Act (ESA)-listed threatened fish species: Bull Trout (*Salvelinus confluentus*), Puget Sound Chinook (*Oncorhynchus tshawytscha*), and Puget Sound Steelhead (*Oncorhynchus mykiss*); and seven fish species of concern: Coho salmon (*Oncorhynchus kisutch*), Sockeye Salmon (*Oncorhynchus nerka*), Chum Salmon (*Oncorhynchus keta*), Pink Salmon (*Oncorhynchus gorbuscha*), Coastal Cutthroat Trout (*Oncorhynchus clarki clarki*), Pacific Lamprey (*Lampetra tridentata*), and River Lamprey (*Lampetra ayresi*). Not only are the above fish species keystone species, they also support commercial, sport, subsistence, and cultural uses to people. In particular, Muckleshoot and Suquamish Tribal people who have treaty fishing rights to Green River fish.

Because this AMI deployment project will decrease the amount of water being diverted by Tacoma Water, there will be a positive impact to the above fish species. This is especially true for Chinook salmon whose productivity is not limited by adult spawning habitat but rather by juvenile rearing habitat. As described by Anderson and Topping in a 2018 article in the *North American Journal of Fisheries Management* (38, 180 – 193), the Chinook had greater juvenile productivity in years with greater instream flow.

Will the project benefit a larger initiative to address water reliability?

As mentioned previously, the Puget Sound regional Water Supply Forum supports all water utilities in the Puget Sound region covering King, Pierce, and Snohomish Counties. The Water Supply Forum has focused initiatives on assuring adequate water supply throughout the entire region and actions by individual utilities within the region to conserve water benefit all utilities in the region.

Will the project benefit Indian tribes?

As stated previously, the Muckleshoot and Suquamish Tribes have fishing rights on the Green River and both tribes have a long history of fishing in that area. The increased river flow enabled by the AMI deployment project will enhance the Green River fishery for the tribes.

Environmental preservation is also particularly important to both tribes. The water and energy use and greenhouse gas emissions reductions will help to preserve the environment in the tribal areas.

Will the project benefit rural or economically disadvantaged communities?

Yes, according to US Census Bureau data, 15.9% of the population of Tacoma live in poverty. In addition, a separate 2016 United Way report indicated that 31% of households in Pierce

County, of which Tacoma is the largest city, are Asset Limited, Income Constrained, Employed (ALICE). The AMI deployment project provides opportunities for all residents, including those in poverty or ALICE, to reduce their water and electricity usage and save money spent on these for other important needs.

Describe how the project will help to achieve these multiple benefits. In your response, please address where the conserved water will go and where it will be used, including whether the conserved water will go to offset groundwater pumping, used to reduce diversions, used to address shortages that impact diversions or reduce deliveries, made available for transfer, left in the river system, or used to meet another intended use?

The responses above addressed specifically how these multiple benefits related to industrial and economically disadvantaged customers, threatened species, overall conservation concerns, and the tribes are achieved. Although this is a diverse set of beneficiaries, the AMI deployment project is able to address needs for each of them.

As was discussed previously, many of these multiple benefits are achieved through the conserved water that is able to remain in the Green River system as well as potentially reduce the amount of groundwater pumping that will be necessary.

3. Does the project promote and encourage collaboration among parties in a way that helps increase the reliability of the water supply?

Yes, Tacoma Water has broad support for the project from customers, local government officials, tribal leaders, and water conservation organizations including the Water Supply Forum mentioned previously and the Alliance for Water Efficiency (AWE). These organizations are focused on improving the reliability and resiliency of the water supply. In discussions with the Director of Programs for AWE, he specifically referenced the existence of an AMI workgroup and some of the water savings benefits available through AMI that their organization supports.

Is there widespread support for the project?

Yes, as stated above, Tacoma Water has broad support for the project from customers, local government officials, and tribal leaders. Each of these groups understand the economic and environmental benefits of the project to Tacoma Water and the Puget Sound region. Please see the Letters of Support section and Appendix A of this application.

What is the significance of the collaboration/support?

In taking on such a large and important project, it is important to have the support of the organizations listed. Without that support, the project would not be nearly as successful or beneficial.

The collaboration will go well beyond the implementation of the project through the opportunities the project affords for improved customer service and environmental stewardship. Many of the stewardship aspects have been discussed previously, but the AMI deployment project enables customers to be in much better control of their water and

electricity usage while providing detailed usage data. The project also enhances the communication between the utility and its customers through the use of the customer portal.

Is the possibility of future water conservation improvements by other water users enhanced by completion of this project?

Yes, other water utilities will be able to see and understand the benefits of an AMI system through seeing the success of the Tacoma Water project. This will encourage them to also deploy an AMI system that will result in further water conservation both in the region and around the country. Tacoma Water is one of the largest water purveyors in Washington State and often looked to for regional leadership within the water sector.

Will the project help to prevent a water-related crisis or conflict? Is there frequently tension or litigation over water in the basin?

There are no current or pending crises or conflicts concerning water in the region, but the Central Puget Sound region is susceptible to a variety of natural threats, such as earthquakes, volcanos, wildfires, severe storms, and drought. These threats have the potential to disrupt the delivery of safe and reliable water. Catastrophic events such as these are a reality every community could face. To plan for these threats, the Central Puget Sound Water Supply Forum (comprised of Seattle Public Utilities, Tacoma Water, Everett Public Works, Cascade Water Alliance, and other water utilities in the region) came together—without crisis or mandate—to determine how utilities could continue providing essential water service during a crisis.

Describe the roles of any partners in the process. Please attach any relevant supporting documents.

TPU/Tacoma Water is not relying on any partners in the process other than the organizations under contract to deliver products and services necessary to implement the project. Contract documents with these organizations can be provided is specifically needed and requested.

4. Will the project address water supply reliability in other ways not described above?

Water supply reliability has been fully addressed through the responses to questions provided above.

Evaluation Criterion C: Implementing Hydropower (18 points)

Up to 18 points may be awarded for this criterion. This criterion prioritizes projects that will install new hydropower capacity in order to utilize our natural resources to ensure energy is available to meet our security and economic needs.

If the proposed project includes construction or installation of a hydropower system, please address the following:

This project does not include construction or installation of a hydropower system although the energy sector will be less encumbered by the energy savings this project will provide.

Evaluation Criterion D: Complementing On-Farm Irrigation Improvements (10 points)

Up to 10 points may be awarded for projects that describe in detail how they will complement on-farm irrigation improvements eligible for NRCS financial or technical assistance.

Note: Scoring under this criterion is based on an overall assessment of the extent to which the WaterSMART Grant project will complement ongoing or future on-farm improvements. Applicants should describe any proposal made to NRCS, or any plans to seek assistance from NRCS in the future, and how an NRCS-assisted activity would complement the WaterSMART Grant project. Financial assistance through EQIP is the most commonly used program by which NRCS helps producers implement improvements to irrigation systems, but NRCS does have additional technical or financial assistance programs that may be available. Applicants may receive maximum points under this criterion by providing the information described in the bullet points below. Applicants are not required to have assurances of NRCS assistance by the application deadline to be awarded the maximum number of points under this sub-criterion. Reclamation may contact applicants during the review process to gather additional information about pending applications for NRCS assistance if necessary.

This project will not complement on-farm irrigation improvements.

Evaluation Criterion E: Department of the Interior Priorities (10 points)

Up to 10 points may be awarded based on the extent that the proposal demonstrates that the project supports Department and Reclamation priorities. Please address those priorities that are applicable to your project. It is not necessary to address priorities that are not applicable to your project. A project will not necessarily receive more points simply because multiple priorities are addressed. Points will be allocated based on the degree to which the project supports one or more of the priorities listed, and whether the connection to the priority(ies) is well supported in the proposal.

Department Priorities

1. Creating a conservation stewardship legacy second only to Teddy Roosevelt.

This AMI deployment project provides a tangible conservation stewardship legacy by saving 2,049.5 AFY of water, reducing CO₂ emissions by 36.2 metric tons per year, and conserving energy. As discussed above in detail, these conservation savings improve the environment, improve fish habitat, encourage tribal collaboration, and economically support people in need in the Tacoma community. Tacoma Water believes that this project fully supports the Department of Interior's priority around creation of a conservation stewardship legacy.

2. Utilizing our natural resources

Tacoma Water believes in efficiently using natural water resources for the benefit of the people of Tacoma. This project supports that efficient use of natural resources by saving water that would otherwise seep into the ground through leakage or overuse.

3. Restoring trust with local communities

Providing tribes with improved fisheries, helping economically disadvantaged people to save money on their utility bills, and providing improved customer service are all actions supported by this project that restore trust with local communities.

4. Striking a regulatory balance

Not applicable.

5. Modernizing our infrastructure

This project will support the White House Public/Private Partnership Initiative to modernize the U.S. infrastructure by having private companies, including Sensus and Tribus Services Inc., work with a Public Utility, Tacoma Water, to install 21st century modern metering technology. The initiative is further supported by the amount of financial commitment being provided by Tacoma Water for this project, not relying on the Federal government for all of the support. This AMI technology is providing customers with the information and data necessary to make informed decisions about their water and electricity usage. Also, it is providing the utility with information and data necessary to more efficiently operate their systems and bring the best possible customer service. AMI technology is bringing communities together to better detect leaks; save time, money, water, and electricity; and reduce the impact of greenhouse gases. As this project highlights the installation of new infrastructure, it matches well with the priority of the Department of Interior.

Reclamation Priorities

1. Increase Water Supplies and Reliability

This AMI deployment project supports the Reclamation priority to increase water supplies and reliability. The project saves 2,049.5 AFY of water that significantly improves the water supply and reliability within the Green River system, which is the primary source of Tacoma's water. Reliability is further enhanced by the support that this project has amongst customers, conservation organizations, local government officials, and tribal leadership.

2. Streamline Regulatory Processes

Not applicable.

3. Leverage Science and Technology to Improve Water Supply Reliability

This AMI deployment project leverages science and technology by installing a 21st century, hi-tech metering system that clearly improves water supply reliability through water saved and improved conservation.

4. Address Ongoing Drought

Not applicable.

5. Improve the Value of Hydropower to Reclamation Power Customers

Not applicable.

6. Improve Water Supplies for Tribal and Rural Communities

This AMI deployment project improves the water available to the Muckleshoot and Suquamish Tribes that have fishing rights on the Green River. The added 2,049.5 AFY of water will improve fish spawning habitat for species listed as part of the Endangered Species Act.

7. Implementation of New Title Transfer authority

Not applicable.

Evaluation Criterion F: Implementation and Results (6 points)

Up to 6 points may be awarded for these subcriteria.

Subcriterion F.1 – Project Planning

Points may be awarded for proposals with planning efforts that provide support for the proposed project.

Does the project have a Water Conservation Plan, and/or System Optimization Review (SOR) in place? Please self-certify, or provide copies of these plans where appropriate, to verify that such a plan is in place.

Tacoma Water does have a Water Conservation Plan (<https://www.mytpu.org/wp-content/uploads/tacomawaterconservationplangoal0219web-2.pdf>) that speaks to AMI as a significant part of the long-term conservation vision of the utility and specifically addresses how AMI fits with the utility strategic goal of leveraging technology to benefit the customer experience.

Provide the following information regarding project planning:

Identify any district-wide, or system-wide, planning that provides support for the proposed project. This could include a Water Conservation Plan, SOR, Drought Contingency Plan or other planning efforts done to determine the priority of this project in relation to other potential projects.

As stated above, Tacoma Water does have a Water Conservation Plan that specifically identifies AMI as part of the long-term conservation vision of the utility. In addition, significant planning went into this overall project including creation of a Business Case that has been presented to and approved by the Utility Board. This has resulted in the funding of the first phases of the overall project that involved system planning as well as procurement of the AMI system, the Meter Data Management System, the Customer Portal, the meter installation and integration services necessary to assure that the AMI system would be able to pass data back and forth with existing Tacoma Water systems. A subsequent phase of the overall project completed and

tested those integrations and installed the communications network infrastructure required. The AMI deployment project now carries out the last stage of the overall effort by deploying the meters/modules in the field.

Considering the advanced stage of this effort, it has clearly been planned and prioritized by Tacoma Water.

Describe how the project conforms to and meets the goals of any applicable planning efforts, and identify any aspect of the project that implements a feature of an existing water plan(s).

The AMI deployment project fulfills the long-term vision for AMI that was addressed in the latest Water Conservation Plan. Completion of the meter/module deployment also enables the utility to realize the full benefit of the project, both from a financial perspective and from a conservation perspective with the saving of 2,049.5 AFY of water and the reduction of CO₂ by 36.2 metric tons.

Subcriterion F.2 – Performance Measures

Points may be awarded based on the description and development of performance measures to quantify actual project benefits upon completion of the project.

Provide a brief summary describing the performance measure that will be used to quantify actual benefits upon completion of the project (e.g., water saved or better managed, energy generated or saved). For more information calculating performance measure, see Appendix A: Benefit Quantification and Performance Measurement Guidance.

All Water and Energy Efficiency Grants applicants are required to propose a “performance measure” (a method of quantifying the actual benefits of their project once it is completed). A provision will be included in all assistance agreements with Water and Energy Efficiency Grants recipients describing the performance measure and requiring the recipient to quantify the actual project benefits in their final report to Reclamation upon completion of the project. If information regarding project benefits is not available immediately upon completion of the project, the financial assistance agreement may be modified to remain open until such information is available and until a Final Report is submitted. Quantifying project benefits is an important means to determine the relative effectiveness of various water management efforts, as well as the overall effectiveness of Water and Energy Efficiency Grants.

Note: program funding may be used to install necessary equipment to monitor progress. However, program funding may not be used to measure performance after project construction is complete (these costs are considered normal operation and maintenance costs and are the responsibility of the applicant).

Performance Measure A.2: Projects with Quantifiable Water Savings

Good water management requires accurate and timely water measurement at appropriate locations throughout a conveyance system. This includes irrigation delivery systems and municipal distribution systems.

Performance Measure A.2.a. Measuring Devices: Municipal Metering

Whether the project includes new meters where none existed previously or replaces existing meters

The AMI deployment project replaces 105,696 existing meters with AMI meters and additionally retrofits 1,527 existing meters with new AMI digital read registers.

Whether the project includes individual water user meters, main line meters, or both

The AMI deployment project includes the deployment of individual water user meters only.

If the project replaces existing individual water user meters with new meters, whether new technologies (automatic meter reading or AMI meters) will be employed

AMI meters will replace existing manual read and touch-read meters.

Include a description of both pre- and post-project rate structuring.

Note: Distribution system meters will not receive points for quantifiable water savings under Evaluation Criterion A – Quantifiable Water Savings. Accordingly, these projects must be paired with a complementary project component that will result in water savings in order for the proposal to be receive credit for water savings, e.g., pipe installation using upgraded materials, or individual water service meters.

Tacoma Water's current residential rate structure includes both fixed charges based on meter size (5/8", 3/4", or 1") and per 100 cubic feet (CCF) usage charges that are tiered for summer months due to dry summer conditions and higher water demand. From June 1 to September 30, the first 5 CCF is billed at the lower Tier 1 rate. Any water consumed in excess of the initial 5 CCF is billed at the higher Tier 2 rate, which is 20% higher than the Tier 1 rate.

At this time, no specific rate structure changes are planned for water rates after completion of the AMI deployment project. The specific rate charged may change as it last did (effective January 1, 2020), but the structure would remain unchanged. The vastly more consumption data available after AMI deployment project completion will enable Tacoma Water to assess the current rate structure and determine if there are changes that should be made to enhance conservation and better match costs of service. The available data will also assist customers on a more real-time basis in making decisions about their usage to conserve when possible to avoid additional cost.

Overall Performance Measures

The performance measures that will be used to quantify actual conservation benefits upon completion of the AMI deployment project will include measures to quantify water savings from leaks, customer behavior using the Customer Portal, and improved meter accuracy. Measures to address reduced carbon emissions will also be included.

Table 6 summarizes the performance measures of the AMI deployment project that will demonstrate and quantify actual benefits and effectiveness. Each savings attribute will have its own measure and an overall volume metric will also be calculated. Water use monitoring will be

provided to Reclamation throughout the reporting period and will be included in the final report. Water use monitoring will continue beyond that timeframe to be able to make a fair assessment of the actual water savings from this AMI deployment project.

Table 6. AMI Project Performance Measures

AMI Project Performance Measures		
Performance Measure	Target	Measurement Tools and Methods
Leakage Reduction	25% reduction in leak forgiveness value provided	Compare pre and post deployment leak forgiveness values. They should go down by approximately 25% to match calculated savings with an efficiency of 26.3%.
Customer Portal Savings	>20 % adoption of Customer Portal by Water Customers and Reduced usage by Customer Portal customers	Report on the percentage of customers who subscribe to the portal. Obtain a representative sample of customers who do and don't use the portal and compare their usage pre-AMI to post AMI to identify the level of reduced consumption and compare with expected reduction.
Improved Meter Accuracy	Reduction over time equivalent to meter inaccuracy	Initially, improved accuracy would be expected to increase metered sales because usage won't be under-reported. But this should go down over time and customers understand and adjust their consumption. As such, could take a representative sample of customers using different meter ages being replaced and compare the trend of their monthly consumption from pre-AMI to initial post-AMI to long term post-AMI to see if it follows the expected behavior and reduction in usage.
Total Quantified Water Savings	2,049.5 AFY	Compare forecasted water demand that includes other conservation efforts to actual water demand to see whether it has dropped the expected 2,049.5 AFY.
Carbon Emissions Savings	90% reduction in non-read truck rolls	Truck rolls to read meters will definitely result from AMI. Non-read truck rolls are expected to drop 90% and this can be measured as a verification of the 36.2 metric tons of CO ₂ savings.

Subcriteria F.3 – Readiness to Proceed

Points may be awarded based upon the extent to which the proposed project is capable of proceeding upon entering into a financial assistance agreement. Please note, if your project is selected, responses provided in this section will be used to develop the scope of work that will be included in the financial assistance agreement.

Applications that include a detailed project implementation plan (e.g., estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates) will receive the most points under this criterion.

Identify and provide a summary description of the major tasks necessary to complete the project. Note: please do not repeat the more detailed technical project description provided in Section D.2.2.4.; this section should be focused on a summary of the major tasks to be accomplished as part of the project.

1. October 2020: Begin Initial Deployment Area deployment of the small group of meters for further verification/testing
2. December 2020: Complete IDA testing and begin to order and receive production quantities of meters/modules
3. January 2021: Start mass deployment of meters
4. Spring 2021: Award notification from Bureau of Reclamation
5. December 2022: Complete mass deployment of meters

Describe any permits that will be required, along with the process for obtaining such permits.

There are no required permits anticipated for the AMI deployment project. All of the AMI deployment project work will be conducted at current meter locations. All Project-related approvals will be handled by Tacoma Water and will be executed in a timely and efficient manner. No additional approvals are necessary by the Utility Board to move forward with deployment.

Identify and describe any engineering or design work performed specifically in support of the proposed project.

No additional engineering or design work is necessary as part of this AMI deployment project. Engineering and design work is essentially complete at this time with final technical testing underway.

Describe any new policies or administrative actions required to implement the project.

None.

Please also include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates. Milestones may include, but are not limited to, the following: complete environmental and cultural compliance; mobilization; begin construction/installation; construction/installation (50% complete); and construction/installation (100% complete)

An estimated project schedule is provided as Figure 3 below:

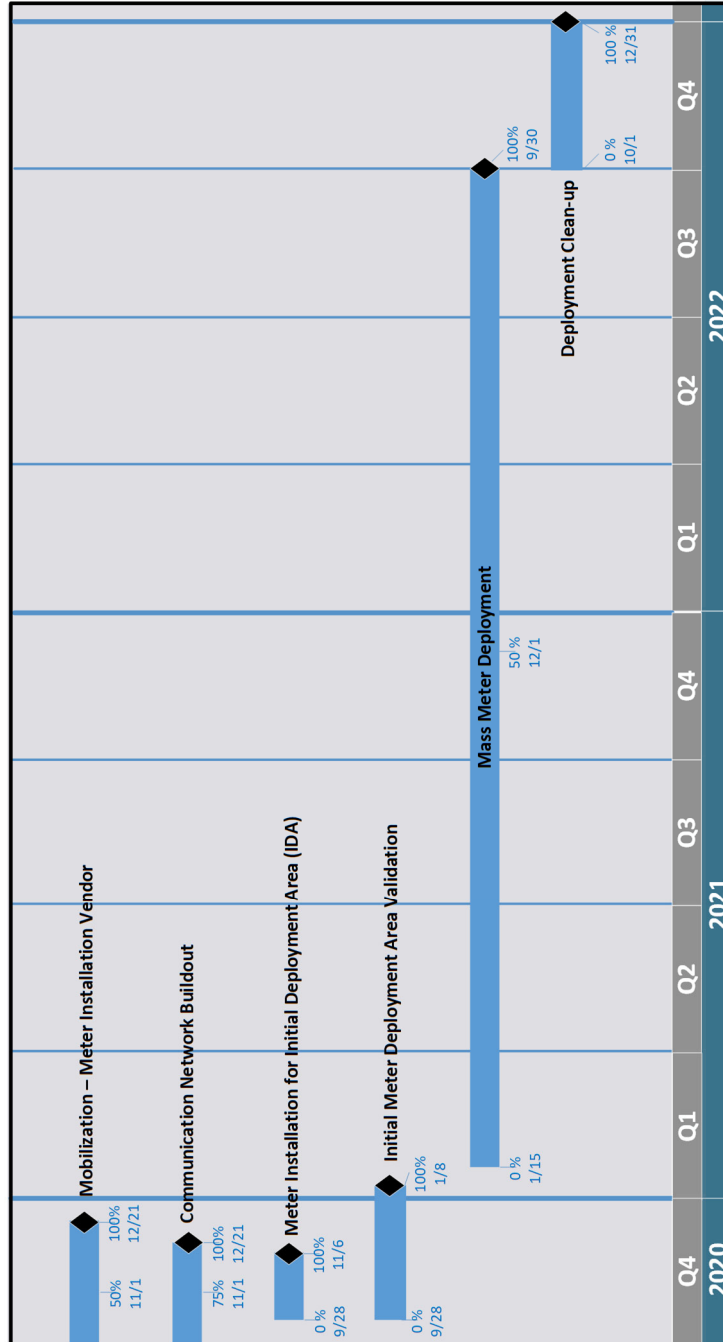


Figure 3. Project Schedule

Evaluation Criterion G: Nexus to Reclamation Project Activities (4 points)

Up to 4 points may be awarded if the proposed project is in a basin with connections to Reclamation project activities. No points will be awarded for proposals without connection to a Reclamation project or Reclamation activity.

Is the proposed project connected to Reclamation project activities? If so, how? Please consider the following:

No.

Does the applicant receive Reclamation project water?

No, Tacoma Water's intake is from the Green River and ground wells.

Is the project on Reclamation project lands or involving Reclamation facilities?

No, the AMI deployment project is neither on Reclamation lands nor involves Reclamation facilities.

Is the project in the same basin as a Reclamation project or activity?

No, the AMI deployment project is not in the same basin as a Reclamation project or activity.

Will the proposed work contribute water to a basin where a Reclamation project is located?

No, the project will not contribute water to a Reclamation project basin.

Will the project benefit any Tribes?

Yes, the savings of water will improve the fisheries in the Green River where both the Muckleshoot and Suquamish Tribes have fishing rights.

Evaluation Criterion H: Additional Non-Federal Funding (4 points)

Up to 4 points may be awarded to proposals that provide non-Federal funding in excess of 50 percent of the project costs. State the percentage of non-Federal funding provided using the following calculation:

\$25,229,026 (Non-Federal Funding)

\$27,229,026 (Total Project Cost)

The Non-federal cost-share is 92.7% of the total cost and will be paid by TPU funding sources.

PROJECT BUDGET

The project budget includes:

- (1) Funding plan and letters of commitment*
- (2) Budget proposal*
- (3) Budget narrative*

If the proposed project is selected, the awarding Reclamation Grants Officer will review the proposed pre-award costs to determine if they are consistent with program objectives and are allowable in accordance with the authorizing legislation. Proposed pre-award costs must also be compliant with all applicable administrative and cost principles criteria established in 2 CFR Part 200, available at www.ecfr.gov, and all other requirements of this FOA. Costs incurred prior to July 1, 2020 are not eligible project costs under this FOA and should not be included in the proposed budget estimate.

Please note that the costs for preparing and submitting an application in response to this FOA, including the development of data necessary to support the proposal, are not eligible project costs under this FOA and must not be included in the project budget. In addition, Budget Proposals must not include costs for the purchase of water or land, or to secure an easement other than a construction easement. These costs are not eligible project costs under this FOA.

Funding Plan and Letters of Commitment

Describe how the non-Federal share of project costs will be obtained. Reclamation will use this information in making a determination of financial capability.

TPU will fund 100 percent of all non-Federal project costs. The AMI deployment project is the last part of an overall AMI project that has been planned and approved by the TPU Utility Board and the City Council.

Other than the funding provided by the Bureau of Reclamation under this grant application and TPU, there are no other sources of funding necessary to complete this project. As there are no other sources of funding, a letter of commitment is not required for this application.

Please identify the sources of the non-Federal cost-share contribution for the project, including:

Any monetary contributions by the applicant towards the cost-share requirement and source of funds (e.g., reserve account, tax revenue, and/or assessments).

TPU will provide monetary contributions primarily from reserve accounts, utility revenue (for O&M costs), and existing bond funding for large capital improvement projects.

Any costs that will be contributed by the applicant.

In addition to monetary contributions to cover contract costs, TPU employees will contribute to the completion of the project. No other cost contributions from any other source are necessary.

Any third-party in-kind costs (i.e., goods and services provided by a third party).

There is no third-party contribution associated with this project.

Any cash requested or received from other non-Federal entities.

No other funding has been requested or received from other non-Federal entities.

Any pending funding requests (i.e., grants or loans) that have not yet been approved and explain how the project will be affected if such funding is denied.

No funding requests are pending.

In addition, please identify whether the budget proposal includes any project costs that have been or may be incurred prior to award. For each cost, describe:

The project expenditure and amount.

The date of cost incurrence.

How the expenditure benefits the project.

The AMI deployment project will begin to incur costs beginning in October 2020, before award of the grant. These costs include the purchase of 153 water meters/modules for the Initial Deployment Area and the associated cost for the deployment of these meters/modules in the field. The total cost for deployment of these meters in October 2020 is \$50,000. There may also be some initial purchase of meters for mass deployment ahead of the grant approval. The specific quantity and cost are unknown at this time but would be a small portion of the overall project cost.

The deployment of these meters will benefit the project greatly by getting a small quantity out in the field to verify that they can be remotely read and communicated with via the AMI communications network. Verification will also be done to assure that the meters and the AMI system meet all functional requirements specified under the contract with Sensus and that data from the meters can be absorbed and used in TPU legacy systems.

Completing this Initial Deployment Area deployment and testing at this time will provide adequate time before the start of mass deployment in January of 2021.

Budget Proposal

Table 7. Total Project Cost Table

SOURCE	AMOUNT
Costs to be reimbursed by requested Federal funding	\$ 2,000,000
Costs to be paid by the applicant	\$ 25,229,026
Value of third-party contributions	\$ -0-
TOTAL PROJECT COST	\$ 27,229,026

The budget proposal should include detailed information on the categories listed below and must clearly identify all items of cost, including those that will be contributed as non-Federal cost share by the applicant (required and voluntary), third-party in-kind contributions, and those that will be covered using the funding requested from Reclamation, and any requested pre-award costs. Unit costs must be provided for all budget items including the cost of services or other work to be provided by consultants and contractors. Applicants are strongly encouraged to review the procurement standards for Federal awards found at 2 CFR §200.317 through §200.326 before developing their budget proposal. If you have any questions regarding your budget proposal or eligible costs, please contact the grants management specialist identified in Section G. Agency Contacts.

It is also strongly advised that applicants use the budget proposal format shown on the next page in Table 2 or a similar format that provides this information. If selected for award, successful applicants must submit detailed supporting documentation for all budgeted costs. It is not necessary to include separate columns indicating which cost is being contributed as non-Federal cost share or which costs will be reimbursed with Federal funds.

Note: The costs of preparing bids, proposals, or applications on potential Federal and non-Federal awards or projects, including the development of data necessary to support the non-Federal entity's application are not eligible project costs and should not be included in the budget proposal (2 CFR §200.460).

The Budget Proposal, in the desired format, is provided as Table 8 on the following page.

Table 8. TPU AMI Deployment Project Budget Proposal

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	\$/Unit	Quantity		
Salaries and Wages				
Program Staff				
André Pedefferri, AMI Program Manager (.27 FTE)	\$ 106.50	1090.8	Hours	\$ 116,170.20
Pat Bacon, Deployment Lead (.27 FTE)	\$ 74.07	1090.8	Hours	\$ 80,795.56
AMI Workstream Lead (.27 FTE)	\$ 66.10	1090.8	Hours	\$ 72,101.88
AMI Management Analyst I (.81 FTE)	\$ 33.21	3272.4	Hours	\$ 108,665.50
AMI Management Analyst II (.54 FTE)	\$ 40.88	2181.6	Hours	\$ 89,183.81
Water Staff				
Water Utility Worker (6.24 FTE)	\$ 27.05	19563.2	Hours	\$ 529,184.56
Water Service Worker (4.14 FTE)	\$ 35.83	12973.6	Hours	\$ 464,844.09
Water Meter Repair Worker (4 FTE)	\$ 36.19	12539.2	Hours	\$ 453,793.65
Water Management Analyst III (1 FTE)	\$ 52.64	3134.8	Hours	\$ 165,015.87
Water Meter Shop Lead (1 FTE)	\$ 42.02	3134.8	Hours	\$ 131,724.30
Water Service Supervisor (1 FTE)	\$ 49.23	3134.8	Hours	\$ 154,326.20
Fringe Benefits				
Full-Time Employees				
Medical	\$ 20,265.77	19.5	Per FTE/Year	\$ 724,501.28
Dental	\$ 1,619.58	19.5	Per FTE/Year	\$ 57,899.99
Basic Life Insurance	0.20%	2,365,805.61	% of Salary	\$ 4,731.61
FICA-Medicare	1.45%	2,365,805.61	% of Salary	\$ 34,304.18
FICA-OASDI	6.20%	2,365,805.61	% of Salary	\$ 146,679.95
TERS Pension	11.34%	2,365,805.61	% of Salary	\$ 268,282.36
Unemployment Insurance	0.17%	2,365,805.61	% of Salary	\$ 4,021.87
Workers Compensation Insurance (Office Workers)	\$0.01	11861.2	Per Hour	\$ 118.61
Workers Compensation Insurance (Field Workers)	\$0.95	51345.6	Per Hour	\$ 48,778.32
Part-Time Employees				
				\$ -
Travel				
				\$ -
Equipment				
				\$ -
Supplies and Materials				
				\$ -
Contractual/Construction				
Sensus Water Modules (per contract)	\$ 63.66	107223	Each	\$ 6,825,816.18
Sensus Water Meters (per contract)				\$ -
METER, POSITIVE DISPLACEMENT, TR, 1"	\$ 84.89	2490	Each	\$ 211,376.10
METER, POSITIVE DISPLACEMENT, TR, 3/4"	\$ 62.48	2480	Each	\$ 154,950.40
METER, POSITIVE DISPLACEMENT, TR, 5/8"	\$ 49.65	97500	Each	\$ 4,840,875.00
ALLY METER, POSITIVE DISPLACEMENT, TR, 5/8"	\$ 310.74	205	Each	\$ 63,701.70
METER DOMESTIC FIRE, ELECTRIC, 3/4"	\$ 113.51	60	Each	\$ 6,810.60
METER, 1 1/2"	308.17	1733	Each	\$ 534,055.32
METER, 2"	654.11	1002	Each	\$ 655,420.33
METER, 3"	1013.70	142	Each	\$ 143,945.41
METER, 4"	1860.52	39	Each	\$ 72,560.27
METER, 6"	3298.90	22	Each	\$ 72,575.87
METER, 8"	6126.50	17	Each	\$ 104,150.54
METER, 10"	5905.43	5	Each	\$ 29,527.13
METER, 16"	11680.39	1	Each	\$ 11,680.39

Table 9. TPU AMI Deployment Project Budget Proposal (cont.)

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	\$/Unit	Quantity		
Contractual/Construction cont.				
Tribus (Meter Installation Vendor, per contract)				\$ -
Water Meter Replacement				\$ 5,658,973.97
Water Meter Retrofits				\$ 70,682.92
External Customization				\$ 9,190.80
Training & Documentation				\$ 1,899.45
Drilling Meter Box Lids (300) Concrete				\$ 8,688.00
Drilling Meter Box Lid (300) plastic				\$ 4,875.00
Web Scheduler (one time)				\$ 945.00
Web Scheduler (monthly)				\$ 8,100.00
Robo Call (one time setup)				\$ 729.00
Robo Call Maintenance (monthly)				\$ 50,544.00
IFS Portal Seat (monthly)				\$ 1,451.26
IFS Portal Mobile Seat (one time)				\$ 125.55
IFS Portal Mobile Seat (monthly)				\$ 1,094.58
Performance and Payment bond				\$ 18,346.50
Handhelds (Purchase)				\$ 6,318.00
Handhelds (Maintenance 2 years)				\$ 28,130.07
Water Box & Lids (per contract)				\$ -
COVER,SMALL,METER BOX,AMR,TOUCH PAD	21.48	2400	Each	\$ 51,552.00
Hubbell/ Fogtite 3 replacement	19.14	72080	Each	\$ 1,379,611.20
Hubbell /Lundberg replacement lid	38.61	19900	Each	\$ 768,339.00
DFW / 445 steel Replacement Lid	242.78	1500	Each	\$ 364,170.00
				\$ -
Third-Party Contributions				
				\$ -
				\$ -
Other				
Estimate for Water Installation Repair Costs				\$ 204,000.00
Water Box Improvement Costs				\$ 1,208,691.00
				\$ -
TOTAL DIRECT COSTS				\$ 27,229,026.31
Indirect Costs				
Type of rate	percentage	\$base		
TOTAL ESTIMATED PROJECT COSTS				\$ 27,229,026.31

Budget Narrative

Submission of a budget narrative is mandatory. An award will not be made to any applicant who fails to fully disclose this information. The budget narrative provides a discussion of, or explanation for, items included in the budget proposal. The types of information to describe in the narrative include, but are not limited to, those listed in the following subsections. Costs, including the valuation of third-party in-kind contributions, must comply with the applicable cost principles contained in 2 CFR Part §200, available at the Electronic Code of Federal Regulations (www.ecfr.gov).

Salaries and Wages

Indicate the Project Manager and other key personnel by name and title. The Project Manager must be an employee or board member of the applicant. Other personnel should be indicated by title alone. For all positions, indicate salaries and wages, estimated hours or percent of time, and rate of compensation. The labor rates must identify the direct labor rate separate from the fringe rate or fringe cost for each category. All labor estimates must be allocated to specific tasks as outlined in the applicant's technical project description. Labor rates and proposed hours shall be displayed for each task.

The budget proposal and narrative should include estimated hours for compliance with reporting requirements, including final project and evaluation. Please see Section F.3. Program Performance Reports for information on types and frequency of reports required.

Generally, salaries of administrative and/or clerical personnel will be included as a portion of the stated indirect costs. If these salaries can be adequately documented as direct costs, they should be included in this section; however, a justification should be included in the budget narrative.

The AMI Program Manager for this project is André Pedferri from TPU. Mr. Pedferri is responsible for the overall success of the project and directing actions necessary to complete the project while also tracking budget and schedule. He also has responsibility to report progress on the project to AMI Executive Steering Committee, present reports to that Committee and other senior management, and the Utility Board and City Council as requested. Because Mr. Pedferri is working full time on the project, his time and salary is included in the Budget Item Description.

Pat Bacon will serve as the Deployment Lead overseeing this portion of the overall project and reporting to Mr. Pedferri. He too is working full time on the project and, as such, his time and salary are included in the Budget Item Description.

Tacoma Water personnel will have the responsibility to install and manage the deployment of large meters over 1.5". They will also have technical oversight responsibility to assure that the contracted MIV installers are safely and correctly installing the smaller meters. Lastly, they will be called upon to repair issues identified in the field by the MIV installers that inhibit their ability to complete the installation of a replacement meter and/or module. To complete this work, Tacoma Water will use a Water Utility Worker, a Water Service Worker, a Water Meter Repair Worker, a Water Meter Shop Lead, a MIV embedded TPU employee, and a Water Service Supervisor. A Water Management Analyst III will provide administrative and technical

support to this group. All of these positions are dedicated full time during the hours indicated and are therefore included in the Budget Item Description.

Contracted labor will be used to do the bulk of the meter and module replacements. Their costs are included in the Budget Item Description as Contractual/Construction.

Fringe Benefits

Identify the rates/amounts, what costs are included in this category, and the basis of the rate computations. Federally approved rate agreements are acceptable for compliance with this item.

TPU includes the following for fringe benefits for full-time employees:

- Medical – The rate is \$20,266/Full Time Equivalent (FTE) per year.
- Dental – The rate is \$1,620/FTE/year.
- Basic Life Insurance – The rate is 0.2% of wages.
- FICA – Medicare – The rate is the standard 1.45% of wages.
- FICA – OASDI – The rate is the standard 6.2% of wages.
- TERS Pension – The rate is 11.34% of wages.
- Unemployment Insurance – The rate is 0.17% of wages.
- Workers Compensation (Office Workers) – The rate is \$0.01 per hour worked.
- Workers Compensation (Field Workers) – The rate is \$0.95 per hour worked.

Total amounts are included within the Budget Table.

Travel

Identify the purpose of each anticipated trip, destination, number of persons traveling, length of stay, and all travel costs including airfare (basis for rate used), per diem, lodging, and miscellaneous travel expenses. For local travel, include mileage and rate of compensation.

No travel expenses are necessary for TPU/Tacoma Water employees included within the Budget Item Description. Travel by contract personnel is included within their contract as part of the cost of deployment.

Equipment

If equipment will be purchased, itemize all equipment valued at or greater than \$5,000. For each item, identify why it is needed for the completion of the project and how the equipment was priced. Note: if the value is less than \$5,000, the item should be included under materials and supplies.

If equipment is being rented, specify the number of hours and the hourly rate. Local rental rates are only accepted for equipment actually being rented or leased.

If the applicant intends to use their own equipment for the purposes of the project, the proposed usage rates should fall within the equipment usage rates outlined by the United States Army Corps of Engineers within their Construction Equipment Ownership and Operating Expense Schedule (EP 1110-1-8) at www.publications.usace.army.mil/USACE-Publications/Engineer-Pamphlets/u43545q/313131302D312D38.

Note: If the equipment will be furnished and installed under a construction contract, the equipment should be included in the construction contract cost estimate.

The AMI equipment is being furnished as part of a construction contract with the AMI system provider and, as such, is included in the construction contract cost estimate.

Materials and Supplies

Itemize supplies by major category, unit price, quantity, and purpose, such as whether the items are needed for office use, research, or construction. Identify how these costs were estimated (i.e., quotes, engineering estimates, or other methodology). Note: If the materials/supplies will be furnished and installed under a contract, the equipment should be included in the construction contract cost estimate.

The AMI materials and supplies are being furnished as part of construction contracts with both the AMI system provider and the Meter Installation Vendor. As such, these costs are included in the contribution contract cost estimate.

Contractual

Identify all work that will be accomplished by consultants or contractors, including a breakdown of all tasks to be completed, and a detailed budget estimate of time, rates, supplies, and materials that will be required for each task. For each proposed contract, identify the procurement method that will be used to select the consultant or contractor and the basis for selection. Please note that all procurements with an anticipated aggregate value that exceeds the Micro-purchase Threshold (currently \$10,000) must use a competitive procurement method (see 2 CFR §200.320 – Methods of procurement to be followed). Only contracts for architectural/engineering services can be awarded using a qualifications-based procurement method. If a qualifications-based procurement method is used, profit must be negotiated as a separate element of the contract price. See 2 CFR §200.317 through §200.326 for additional information regarding procurements, including required contract content. Note: A modification to an existing contract for services without first obtaining multiple quotes or proposals is considered a noncompetitive procurement, regardless of the method used to award the existing contract.

The contractual costs for this project are itemized in the Budget Item Description in Table 8 above.

TPU has entered into a contract with the AMI system provider to supply both meters and modules. This contract was competitively bid as required with the bid winner being Sensus.

TPU has also entered into a meter/module installation contract with Tribus Services Inc. to replace water meters, retrofit modules onto registers for existing AMI capable meters and take

necessary actions to prepare the meter box and lid to accommodate the new AMI meter and/or module. TPU has a separate standard contract for the materials and supplies necessary for these meter box and lid fixes as well as handhelds to document the meter exchange and software license seats for access to the information about the installation status. Tribus will also provide training for their installation personnel and provide a web scheduler and robo-call services to assure that customers are aware of the meter replacement and request that it be scheduled for a specific time, if necessary. This contract was also competitively bid as required.

Third-Party In-Kind Contributions

Identify all work that will be accomplished by third-party contributors, including a breakdown of all tasks to be completed, and a detailed budget estimate of time, rates, supplies, and materials that will be required for each task. Third-party in-kind contributions, including contracts, must comply with all applicable administrative and cost principles criteria, established in 2 CFR Part 200, available at www.ecfr.gov, and all other requirements of this FOA.

None.

Environmental and Regulatory Compliance Costs

Prior to awarding financial assistance, Reclamation must first ensure compliance with Federal environmental and cultural resources laws and other regulations (“environmental compliance”). Every project funded under this program will have environmental compliance activities undertaken by Reclamation and the recipient.

Depending on the potential impacts of the project, Reclamation may be able to complete its compliance activities without additional cost to the recipient. Where environmental or cultural resources compliance requires significant participation by Reclamation, costs incurred by Reclamation will be added as a line item to the budget during development of the financial assistance agreement and cost shared accordingly (i.e., withheld from the Federal award amount). Any costs to the recipient associated with compliance will be identified during the process of developing a final project budget for inclusion in the financial assistance agreement.

There are no anticipated environmental and regulatory compliance expense costs that need to be itemized under this project.

Other Expenses

Any other expenses not included in the above categories shall be listed in this category, along with a description of the item and why it is necessary. No profit or fee will be allowed.

Sales tax within the City of Tacoma is 10.2%. The total cost of sales tax for this project is estimated to be \$1,662,000.

Indirect Costs

Indirect costs are costs incurred by the applicant for a common or joint purpose that benefit more than one activity of the organization and are not readily assignable to the activities specifically benefitted without undue effort. Costs that are normally treated as indirect costs include, but are not limited to, administrative salaries and fringe benefits associated with overall financial and organizational administration; operation and maintenance costs for

facilities and equipment; and, payroll and procurement services. If indirect costs will be incurred, identify the proposed rate, cost base, and proposed amount for allowable indirect costs based on the applicable cost principles for the applicant's organization. It is not acceptable to simply incorporate indirect rates within other direct cost line items.

If the applicant has never received a Federal negotiated indirect cost rate, the budget may include a de minimis rate of up to 10 percent of modified total direct costs. For further information on modified total direct costs, refer to 2 CFR §200.68 available at www.ecfr.gov.

If the applicant does not have a federally approved indirect cost rate agreement and is proposing a rate greater than the de minimis 10 percent rate, include the computational basis for the indirect expense pool and corresponding allocation base for each rate. Information on "Preparing and Submitting Indirect Cost Proposals" is available from the Department, the Interior Business Center, and Indirect Cost Services, at www.doi.gov/ibc/services/finance/indirect-cost-services. If the proposed project is selected for award, the recipient will be required to submit an indirect cost rate proposal with their cognizant agency within three months of award. Reimbursement of indirect costs will not be allowable until the recipient enters into the indirect cost rate agreement.

There are no indirect costs that need to be itemized under this project.

ENVIRONMENTAL AND CULTURAL RESOURCE CONSIDERATIONS

To allow Reclamation to assess the probable environmental and cultural resources impacts and costs associated with each application, all applicants should consider the following list of questions focusing on the NEPA, ESA, and NHPA requirements. Please answer the following questions to the best of your knowledge. If any question is not applicable to the project, please explain why. The application should include the answers to:

Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.

The AMI deployment project will not impact the surrounding environment. The only earth disturbing work would be if there's a need to replace or modify the existing water box that houses meters at customer premises. This work would have no significant effects on soil, air, water, or animal habitat.

Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?

There are no known threatened or endangered species in the areas where project work will be conducted.

Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as “Waters of the United States?” If so, please describe and estimate any impacts the proposed project may have.

The project work will be done at customer premises such that there should be no wetlands or other surface waters within the project boundaries.

When was the water delivery system constructed?

In 1893, the City of Tacoma became the owner of Tacoma’s water system and Tacoma Water/TPU was born. The Green River supply system was first constructed in 1913 and a major pipe replacement effort was completed in the 1940s. Tacoma Water’s distribution system has been built and modified over time with service territory growth and need for repair and maintenance.

Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.

The AMI deployment project will not result in any modification or effects to individual features of an irrigation system.

Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.

There are a number of buildings listed or eligible for listing on the National Register of Historic Places, but the activities of this project will have no impact on those places. The project will simply replace water meters serving those buildings.

Are there any known archeological sites in the proposed project area?

There are no known archeological sites in the proposed project area.

Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?

There are no disproportionately high or adverse effects on low income or minority populations in this proposed project. In fact, the results of this project will be of benefit to low income populations by helping them to better manage costs associated with the delivery of water and electricity.

Will the proposed project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?

The AMI deployment project will not limit access or ceremonial use of Indian sacred sites or otherwise impact tribal lands. As discussed previously in this application, the results of this

project will benefit the Muckleshoot and Suquamish Tribes by providing more water for their Green River fisheries.

Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?

The AMI deployment project will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the Tacoma area.

REQUIRED PERMITS OR APPROVALS

Applicants must state in the application whether any permits or approvals are required and explain the plan for obtaining such permits or approvals.

Note that improvements to Federal facilities that are implemented through any project awarded funding through this FOA must comply with additional requirements. The Federal government will continue to hold title to the Federal facility and any improvement that is integral to the existing operations of that facility. Please see P.L. 111-11, Section 9504(a)(3)(B). Reclamation may also require additional reviews and approvals prior to award to ensure that any necessary easements, land use authorizations, or special permits can be approved consistent with the requirements of 43 CFR Section 429, and that the development will not impact or impair project operations or efficiency.

There are no required permits anticipated for the AMI deployment project. All of the project work will be conducted at current customer meter locations within the utility service territory.

LETTERS OF SUPPORT

Please include letters from interested stakeholders supporting the proposed project. To ensure your proposal is accurately reviewed, please attach all letters of support/ partnership letters as an appendix. Letters of support received after the application deadline for this FOA will not be considered in the evaluation of the proposed project.

TPU/Tacoma Water has obtained letters of support from U.S. Senator Patty Murray, U.S. Representative Derek Kilmer, and U.S. Representative Denny Heck. These letters are provided as Appendix A of this application. Additional legislators and tribal leaders have expressed support for this project and the expected results.

OFFICIAL RESOLUTION

Include an official resolution adopted by the applicant's board of directors or governing body, or, for State government entities, an official authorized to commit the applicant to the financial and legal obligations associated with receipt of a financial assistance award under this FOA, verifying:

- The identity of the official with legal authority to enter into an agreement.*
- The board of directors, governing body, or appropriate official who has reviewed and supports the application submitted.*
- The capability of the applicant to provide the amount of funding and/or in-kind contributions specified in the funding plan.*

- *That the applicant will work with Reclamation to meet established deadlines for entering into a grant or cooperative agreement.*

An official resolution meeting the requirements set forth above is mandatory. If the applicant is unable to submit the official resolution by the application deadline because of the timing of board meetings or other justifiable reasons, the official resolution may be submitted up to 30 days after the application deadline, via email to the contact listed in Section D.1. of this FOA.

Official resolutions from the City of Tacoma have been approved to authorize the overall AMI project and to address the hiring of personnel for the project. These resolutions are included as Appendix B. An additional resolution specifically addressing the application and the City’s commitment to work with Reclamation to meet established deadlines for entering into a grant or cooperative agreement, will be presented to the Tacoma Public Utilities Board by October 14th, 2020 and submitted as part of this application thereafter. A copy of the Board Action Memorandum requesting the official resolution is also included in Appendix B.

UNIQUE IDENTITY IDENTIFIER AND SYSTEM FOR AWARD MANAGEMENT

All applicants (unless the applicant has an exception approved by Reclamation under 2 CFR §25.110[d]) are required to:

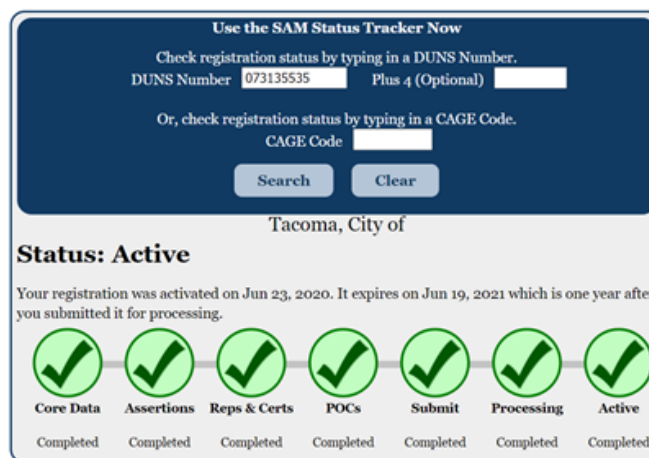
(i) Be registered in the System for Award Management (SAM) before submitting its application

The City of Tacoma currently maintains an active SAM registration. The screenshot below shows the active registration status.

(ii) Provide a valid unique entity identifier in its application

The City of Tacoma uses the DUNS number 073135535 as its unique entity identifier and is currently active and up to date.

(iii) Continue to maintain an active SAM registration with current information at all times during which it has an active Federal award or an application or plan under consideration by a Federal awarding agency.



TPU is committed to maintaining its currently active SAM registration.

APPENDIX A – LETTERS OF SUPPORT

This appendix contains the letters of support from the following Members of Congress:

- U.S. Senator Patty Murray
- U.S. Representative Derek Kilmer
- U.S. Representative Denny Heck

United States Senate

WASHINGTON, DC 20510-4704

COMMITTEES:
APPROPRIATIONS
BUDGET
HEALTH, EDUCATION, LABOR,
AND PENSIONS
VETERANS' AFFAIRS

September 16, 2020

The Honorable Brenda Burman
Commissioner
Bureau of Reclamation
1849 C Street NW
Washington, DC 20240-0001

Dear Commissioner Burman:

I write in support of an application submitted by Tacoma Public Utilities/Tacoma Water (TPU) for the Bureau of Reclamation's *WaterSMART* grant program for the Advanced Metering Infrastructure (AMI) project.

TPU is seeking funding to support their long-term goal of water supply reliability and efficient water management. The AMI project would provide multiple improvements to customers including an advanced meter system that would be able to better detect leaks and provide that information to customers to take action. It would create a new customer portal that would provide users with information on their water usage and finally, it would replace water meters with more accurate ones that would be better able to identify actual water usage.

This project would lead to a number of efficiency improvements, including an estimated water savings of 2,049.5 acre-feet per year, nearly 24,000 gallons of gasoline per year in meter reading and maintenance vehicle consumption, and emissions reductions. These savings would reduce the amount of water pumped out of the Green River, TPU's primary drinking water source, and provide energy savings associated with pumping reduction. Additionally, these water usage reductions would provide flexibility for ongoing initiatives aimed at improving the health of several threatened species including bull trout, Puget Sound Chinook, and Puget Sound steelhead.

Thank you for your consideration of TPU's application. Please contact Bree Rabourn in my Seattle office at 206-553-0724 with any questions.

Sincerely,



Patty Murray
United States Senator

DEREK KILMER
6TH DISTRICT, WASHINGTON

COMMITTEE ON APPROPRIATIONS
DEFENSE SUBCOMMITTEE
INTERIOR, ENVIRONMENT,
AND RELATED AGENCIES SUBCOMMITTEE
ENERGY AND WATER
DEVELOPMENT SUBCOMMITTEE

Congress of the United States
House of Representatives
Washington, DC 20515-4706

OFFICES:
1410 LONGWORTH OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-5916

950 PACIFIC AVENUE
SUITE 1230
TACOMA, WA 98402
(253) 272-3515

345 6TH STREET
SUITE 500
BREMERTON, WA 98337
(360) 373-9725

www.kilmer.house.gov

September 17, 2020

The Honorable Brenda Burman
Commissioner
Bureau of Reclamation
1849 C Street NW
Washington, DC 20240-0001

Dear Commissioner Burman:

I write to express my strong support for the application submitted by Tacoma Public Utilities/Tacoma Water (TPU) to the Bureau of Reclamation's WaterSMART grant program. This \$2 million grant, when complemented with planned utility investment of approximately \$25 million, will help provide more efficient service to the more than 107,000 drinking water customers served by TPU in the City of Tacoma and throughout the region.

Completion of TPU's advanced meter installation is planned for late 2022 and will be coordinated with similar upgrades to TPU's electric meters. This project supports TPU's long-term goal of water supply reliability and efficient water management. TPU's advanced meter program will provide multiple improvements to customers including the ability to better detect leaks and provide that information to customers to take prompt action, a new customer portal that will provide customers with near real time information on their water usage so that they can make more informed choices about their consumption, and the replacement of water meters with more accurate meters that will better identify actual water usage.

Additionally, TPU's project will lead to a number of other measurable efficiency improvements. Those include estimated water savings of 2,049.5 acre-feet per year (AFY), an estimated savings of nearly 24,000 gallons of gasoline per year in meter reading and maintenance vehicle consumption, and estimated emission reductions on the order of 35.1 metric tons of CO₂ per year.

These savings will also reduce the amount of water pumped out of the Green River, TPU's primary drinking water source, and provide energy savings associated with pumping reduction. Furthermore, these water usage reductions will provide flexibility for ongoing initiatives aimed at improving the health of several threatened species including Bull Trout, Puget Sound Chinook, and Puget Sound Steelhead.

Advanced Metering is an essential building block of TPU's infrastructure that enables significant conservation measures, improves the customer experience, and will modernize TPU services now and in the future. For these reasons, I urge your full and fair consideration of Tacoma Public Utilities' application to the WaterSMART grant program. Should you have any questions, please contact Evan Smith in my Tacoma district office at 253-272-3515 or Evan.Smith@mail.house.gov.

Sincerely,



Derek Kilmer
Member of Congress

DENNY HECK
10TH DISTRICT, WASHINGTON

COMMITTEE ON FINANCIAL SERVICES
SUBCOMMITTEE ON CONSUMER PROTECTION
AND FINANCIAL INSTITUTIONS
SUBCOMMITTEE ON HOUSING, COMMUNITY
DEVELOPMENT AND INSURANCE
SUBCOMMITTEE ON NATIONAL SECURITY,
INTERNATIONAL DEVELOPMENT AND MONETARY
POLICY
PERMANENT SELECT COMMITTEE ON
INTELLIGENCE
SUBCOMMITTEE ON DEFENSE INTELLIGENCE
AND WARFIGHTER SUPPORT
SUBCOMMITTEE ON STRATEGIC TECHNOLOGIES
AND ADVANCED RESEARCH
JOINT ECONOMIC COMMITTEE

Congress of the United States
House of Representatives
Washington, DC 20515-4710

WASHINGTON, DC OFFICE
2452 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-9740

THURSTON AND MASON COUNTY OFFICE
420 COLLEGE STREET SE
SUITE 3000
LACEY, WA 98503
(360) 459-8514

PIERCE COUNTY OFFICE
6000 MAIN STREET SW
SUITE 3B
LAKEWOOD, WA 98499
(253) 533-8332

September 17, 2020

The Honorable Brenda Burman
Commissioner
Bureau of Reclamation
1849 C Street NW
Washington, DC 20240-0001

Dear Commissioner Burman,

I write to support the application of Tacoma Public Utilities/Tacoma Water (TPU) for \$2 million from the Bureau's WaterSMART grant program. This grant, when complimented with planned utility investment of approximately \$25 million, will help provide more efficient service to the more than 107,000 drinking water customers served by TPU throughout the South Puget Sound area.

Completion of TPU's advanced meter installation is planned for late 2022 and will be coordinated with similar upgrades to TPU's electric meters. This project supports TPU's long-term goal of water supply reliability and efficient water management. TPU's advanced meter program will provide multiple improvement to customers including:

- The ability of the advanced meter system to better detect leaks and provide that information to customers to take prompt action
- A new 'customer portal' that will provide customers with near real time information on their water usage so that they can make more informed choices about their consumption
- The replacement of water meters with more accurate meters that will better identify actual water usage

Additionally, TPU's project will lead to a number of other measurable efficiency improvements. Those include:

- Estimated water savings of 2,049.5 acre-feet per year (AFY)
- Estimated savings of nearly 24,000 gallons of gasoline per year in meter reading and maintenance vehicle consumption
- Estimated emission reductions on the order of 35.1 metric tons of CO₂ per year

These savings will also reduce the amount of water pumped out of the Green River, TPU's primary drinking water source, and provide energy savings associated with pumping reduction. Additionally, these water usage reductions will provide flexibility for ongoing initiatives aimed at improving the health of several threatened species including Bull Trout, Puget Sound Chinook, and Puget Sound Steelhead.

Advanced Metering is an essential building block of TPU's infrastructure that enables significant conservation measures, improves the customer experience, and will modernize TPU services now and in the future.

Thank you for considering my support of TPU's WaterSMART grant application.

Sincerely,

A handwritten signature in blue ink that reads "Denny Heck". The signature is written in a cursive, flowing style.

Denny Heck
Member of Congress

APPENDIX B – OFFICIAL RESOLUTIONS

This appendix contains the following existing Official Resolutions:

- Resolution No. U-11148, adopted March 11, 2020
- Resolution No. U-11055, adopted January 9, 2019

TPU's draft Official Resolution for this WaterSMART Grant Application is being presented to Tacoma Public Utilities Board on October 14, 2020. The final Official Resolution will be submitted to the Bureau of Reclamation within 30 days as directed.

A copy of the Board Action Memorandum requesting the official resolution is also provided in this appendix.



RESOLUTION NO. U-11148

1 A RESOLUTION authorizing approval to hire three additional positions
2 for the Advanced Metering Infrastructure Project, a special project
3 of limited duration for Tacoma Power.

4 WHEREAS the City of Tacoma, Department of Public Utilities, Light
5 Division, Utility Technology Services Section (d.b.a. "Tacoma Power")
6 established the Advanced Metering Infrastructure Project ("Project"), as a
7 special project of limited duration from January 2019 through December 31,
8 2022, and

9 WHEREAS the Project of limited duration was approved through
10 Resolution No. U-11055, on January 9, 2019, by the Public Utility Board, and

11 WHEREAS since that time, and after an extensive review of resource
12 planning and mitigation efforts, in order to meet the fast paced schedule
13 demanded during the Advanced Metering Infrastructure ("AMI") Project, an
14 additional three new special project of limited duration employees are
15 recommended, and

16 WHEREAS the three additional positions are classified as:

- 17 • Management Analyst II for Utility Technology Services;
- 18 • Management Analyst I for Utility Technology Services; and
- 19 • Water Utility Worker for Tacoma Water, and

20 WHEREAS this resolution will enable Tacoma Power's Utility Technology
21 Services Section ("UTS") to staff the planning and design phases of the Project
22 with technology and business process subject matter experts, and

23 WHEREAS, pursuant to the provisions of Sections 1.12.155 and
24 1.24.187 of the Tacoma Municipal Code and Section 6.1(h) of the Tacoma City
25
26



1 Charter, employees who are not regular employees and are hired as special
2 project employees are paid as provided for by ordinance or resolution of the
3 City Council, and
4

5 WHEREAS it is in the best interests of the Department of Public Utilities
6 to establish three additional temporary positions to support the required
7 activities for the duration of the special project; Now, Therefore:

8 BE IT RESOLVED BY THE PUBLIC UTILITY BOARD OF THE CITY OF TACOMA:

9 Section 1. In accordance with the applicable provisions of TMC 1.12.140
10 and 1.12.155, the salaries and classes set forth in the Compensation Plan for
11 regular City employees shall be applied, contingent upon funding, to similar
12 project positions of the Project.
13

14 Section 3. That, in accordance with TMC 1.24.187 and 1.30.300,
15 employees who have been hired or may be hired for positions expected to be of
16 limited duration shall be designated unclassified special project employees as
17 of the date of hire.

18 Section 4. That those special project employees who have been hired or
19 may be hired to work on the Project as identified in this resolution, shall receive
20 benefits, all in accordance with and pursuant to the provisions of the
21 compensation plan of the City of Tacoma. They shall be given a one-time
22 binding and irrevocable election to participate in the City's Retirement System,
23 pursuant to the retirement provisions of TMC 1.30.300.
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25 Section 5. That because the positions to be filled pursuant to this
26 resolution are of a temporary nature and are unique in that they pertain only to



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the aforementioned special project, they are deemed temporary positions, and persons so employed in such positions shall have no claim to further or continued employment with the City after cessation of such special project or after cessation of activities funded by said programs, except pursuant to their obtaining status as regular City employees under the provisions of the Tacoma Municipal Code or pursuant to further action of the City Council relating to this special project.

Section 6. That all acts by agents or employees of the City consistent with the intent of this resolution taken prior to the effective date of this resolution are hereby ratified.

Section 7. That the term of this Project shall not exceed the expiration of December 31, 2022, unless extended by appropriate action.

Section 8. That the Director of Utilities is hereby authorized to direct the appropriate City officers to proceed with the necessary actions for Project completion, including adding three additional temporary positions to support the required activities for the duration of the Project.

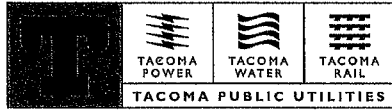
Approved as to form and legality:

[Signature]
Chief Deputy City Attorney

[Signature]
Clerk

[Signature]
Ch
[Signature]
Secretary

Adopted 3-11-2020



Board Action Memorandum

TO: Jackie Flowers, Director of Utilities
COPY: Charleen Jacobs, Director and Board Offices
FROM: Chris Robinson, Power Superintendent/COO
Scott Dewhirst, Water Superintendent/COO
MEETING DATE: March 11, 2020
DATE: March 2, 2020

SUMMARY: Tacoma Public Utilities requests a resolution for approval to hire an additional three positions in support of the Advanced Metering Infrastructure Project. This project was established as a "Special Project of Limited Duration" by Resolution No. U-11055, which approved a total of 26 positions. This request for three additional positions will bring the total number of authorized project positions to 29. These additional positions are essential to support the system integration, training, and deployment phases of the program, from January 2019 through December 31, 2022.

BACKGROUND: On January 9th, 2019 the Public Utility Board adopted Resolution No. U-11055 establishing the Advanced Metering Infrastructure Project as a special project of limited duration.

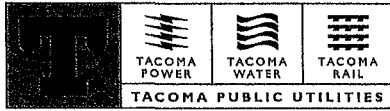
Tacoma Public Utilities (TPU) plans to deploy Advanced Metering Infrastructure (AMI) across its entire water and electric service territories. The AMI project will replace all non-communicating power and water meters with advanced two-way communicating electric (with disconnect) and water meters, and installing new AMI two-way communication modules on water meters that are not replaced. AMI technology will capture interval data, enable two-way communications, include remote capabilities, and provide advanced outage/issue detection and verification. Advanced metering will modernize utility operations and be a cornerstone to deliver customers improved services and benefits.

As a transformative initiative, the AMI Program has and continues to require a significant effort across TPU to implement the new processes, applications, technologies, and integrations needed to fully enable the functions and features of the AMI solution. In addition, customer and stakeholder engagement and organizational change management are essential to project success.

To meet the anticipated needs of the AMI project, 26 special project of limited duration positions were previously approved as part of Resolution No. U-11055. This was comprised of the transfer of 10 temporary positions to the special project of limited duration and the hiring of 16 new special project of limited duration employees.

After an extensive review of resource planning and mitigation efforts, and in order to best meet fast paced schedule demands during AMI mass meter deployment, Tacoma Public Utilities recommends the hiring of an additional three new special project of limited duration employees as part of the already approved special project of limited duration. In addition to the 26 positions identified in adopted Resolution No. U-11055, this will bring the total number of AMI related project positions to 29 within the Utility Technology Services, Tacoma Water, Tacoma Power, and Customer Services departments. Briefly, the three additional roles and services provided are described below:

- Management Analyst II for Utility Technology Services (Program Analyst); This position is responsible for meter deployment program coordination and administration, ensuring the meter



Board Action Memorandum

installation vendor (MIV) is notified of timely utility data and meter read route updates. This position will also coordinate daily and weekly status reports with the meter deployment workstream lead and internal utility stakeholders.

- Management Analyst I for Utility Technology Services (Customer Liaison); This position will serve as the meter deployment customer liaison and is responsible for direct communications, planning and facilitating residential customer phone calls, and coordinating with utility account executives to ensure customers receive responsive, accurate information.
- Water Utility Worker for Tacoma Water; This position is a field staff member responsible for performing planned and emergency support at individual water services and meters before and during the field deployment of water meters. A majority of this position's work will occur in preparation for and throughout the meter deployment project phase.

ARE THE EXPENDITURES AND REVENUES PLANNED AND BUDGETED? Yes, expenses for additional project positions are budgeted within the planned and approved 2019-2020 biennium Advanced Meter Program contingency. Funds for the 2021-2022 biennium are planned and subject to budget approval.

IF THE EXPENSE IS NOT BUDGETED, PLEASE EXPLAIN HOW THEY ARE TO BE COVERED.

N/A.

IF THE ACTION REQUESTED IS APPROVAL OF A CONTRACT, INCLUDE LANGUAGE IN RESOLUTION AUTHORIZING \$200,000 INCREASE IN ADMINISTRATIVE AUTHORITY TO DIRECTOR?

N/A.

ATTACHMENTS: Resolution No. U-11055, Advanced Metering Infrastructure Project of Limited Duration

CONTACT: Andre' Pedefferri, Utility Technology Services, Advanced Meter Program Manager, (253) 502-8997



RESOLUTION NO. U-11055

1 A RESOLUTION authorizing the establishment of the Advanced
2 Metering Infrastructure Project, as a special project of limited
3 duration for Tacoma Power, and designating general salary
4 classifications and benefits for persons employed on the project,
5 pursuant to Tacoma Municipal Code Sections 1.12.155, 1.24.187,
6 1.30.300, and Section 6.1 (h) of the Tacoma City Charter.

7 WHEREAS the City of Tacoma, Department of Public Utilities, Light
8 Division, Utility Technology Services Section (d.b.a. "Tacoma Power") requests
9 Public Utility Board approval to establish the Advanced Metering Infrastructure
10 Project ("Project"), as a special project of limited duration from January 2019
11 through December 31, 2022, and

12 WHEREAS Tacoma Public Utilities ("TPU") plans to deploy Advanced
13 Metering Infrastructure ("AMI") across its entire water and electric service
14 territories that will modernize utility operations and improve services to
15 customers, and

16 WHEREAS the AMI program will involve replacing all non-
17 communicating power and water meters with advanced two-way communicating
18 electric (with disconnect) and water meters, and installing new AMI two-way
19 communication modules on water meters that are not replaced, and

20 WHEREAS AMI will capture interval data, enable two-way
21 communications, include remote capabilities, and provide advanced
22 outage/issue detection and verification, and

23 WHEREAS the Project will provide for the transfer of 10 temporary
24 positions for the Project, and the hiring of 16 employees within UTS, Tacoma
25 Water, Tacoma Power, and the Customer Services departments, to work on the
26



1 integration and implementation phases of the Project, to upgrade power and
2 water meters across Tacoma Public Utilities' Service Territory at all homes and
3 businesses. This is required to address an aging meter population, meet
4 customer needs with time access to consumption data, and align TPU with the
5 metering technology common to other utilities in the region, and
6

7 WHEREAS this resolution will enable Tacoma Power's Utility Technology
8 Services Section ("UTS") to staff the planning and design phases of the Project
9 with technology and business process subject matter experts, and

10 WHEREAS, pursuant to the provisions of Sections 1.12.155 and
11 1.24.187 of the Tacoma Municipal Code and Section 6.1(h) of the Tacoma City
12 Charter, employees who are not regular employees and are hired as special
13 project employees are paid as provided for by ordinance or resolution of the
14 City Council, and
15

16 WHEREAS it is in the best interests of the Department of Public Utilities
17 to establish a Special Project of Limited Duration and establish temporary
18 positions to support the required activities for the duration of the special project;

19 Now, Therefore:

20 BE IT RESOLVED BY THE PUBLIC UTILITY BOARD OF THE CITY OF TACOMA:

21 Section 1. That the Advanced Metering Infrastructure Project,
22 designation as a special project of limited duration, is hereby approved and
23 established as a special project of limited duration.
24

25 Section 2. That, in accordance with the applicable provisions of
26 TMC 1.12.140 and 1.12.155, the salaries and classes set forth in the



1 Compensation Plan for regular City employees shall be applied, contingent
2 upon funding, to similar project positions of the Project.

3 Section 3. That, in accordance with TMC 1.24.187 and 1.30.300,
4 employees who have been hired or may be hired for positions expected to be of
5 limited duration shall be designated unclassified special project employees as
6 of the date of hire.

7
8 Section 4. That those special project employees who have been hired or
9 may be hired to work on the Project as identified in this resolution, shall receive
10 benefits, all in accordance with and pursuant to the provisions of the
11 compensation plan of the City of Tacoma. They shall be given a one-time
12 binding and irrevocable election to participate in the City's Retirement System,
13 pursuant to the retirement provisions of TMC 1.30.300.

14
15 Section 5. That because the positions to be filled pursuant to this
16 resolution are of a temporary nature and are unique in that they pertain only to
17 the aforementioned special project, they are deemed temporary positions, and
18 persons so employed in such positions shall have no claim to further or
19 continued employment with the City after cessation of such special project or
20 after cessation of activities funded by said programs, except pursuant to their
21 obtaining status as regular City employees under the provisions of the Tacoma
22 Municipal Code or pursuant to further action of the City Council relating to this
23 special project.
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Section 6. That all acts by agents or employees of the City consistent with the intent of this resolution taken prior to the effective date of this resolution are hereby ratified.

Section 7. That the term of this Project shall not exceed the expiration of December 31, 2022, unless extended by appropriate action.

Section 8. That the Director of Utilities is hereby authorized to direct the appropriate City officers to proceed with the necessary actions for Project completion, including the transfer of 10 temporary positions for the Project, and the hiring of 16 employees within UTS, Tacoma Water, Tacoma Power, and the Customer Services departments to support the required activities for the duration of the Project.

Approved as to form and legality:

A. Woodrow Jones
Chair

Eric C. Merrill
Chief Deputy City Attorney

[Signature]
Secretary

Charles Jones
Clerk

Adopted 1-9-19

Request for Board meeting

CITY OF TACOMA
DEPARTMENT OF PUBLIC UTILITIES

of January 9, 2019

Date: January 3, 2019

REQUEST FOR RESOLUTION

INSTRUCTIONS: File request in the Office of the Director of Utilities as soon as possible but not later than nine working days prior to the Board meeting at which it is to be introduced. Completion instructions are contained in Administrative Policy POL-104.

1. Summary title for Utility Board agenda: (not to exceed twenty-five words)
Requesting to expand the Advanced Metering Infrastructure (AMI) "Special Project" in the Utility Technology Services Section of Tacoma Power for additional resources. The project of limited duration for the Implementation and Deployment phase of the AMI Program is anticipated to begin January 2019 and will be completed by the end of 2021.

2. A resolution is requested to: (brief description of action to be taken, by whom, where, cost, et)
- Utility Technology Services recommends that the Public Utility Board approve the request to expand the special project under TMC Section 1.24.187 of the Administrative Code which will provide for the transfer of 10 Temporary Positions to Project of Limited Duration, hiring of two Project of Limited Duration positions for Customer Service, hiring of two Project of Limited Duration position for Utility Technology Services, hiring of two Project of Limited Duration positions and five Field Service Workers for Tacoma Water, and hiring of two Project of Limited Duration position for Tacoma Power to work on the integration and implementation phases of the AMI Program.
- Two Management Analyst I for Customer Service; These positions would report to the CS project team and are necessary to document and process map internal CS processes and hand offs within Customer Services and all TPU divisions. This work is an important and essential step to capture necessary changes for the successful implementation of AMI. Failure to approve these temporary positions adds significant risk to CS' ability to properly serve the customer base with solid, reliable processes and systems.
 - Engineering Sr. Principal for Utility Technology Services; This position is responsible for leading the planning and supervision of the meter and network deployment.
 - RF/Communications Engineer for Utility Technology Services; This position is responsible for the analysis, design review, implementation, optimization, monitoring and enhancement of the wireless AMI network.
 - MDMS/IT Lead for Utility Technology Services; This position is responsible for implementing the new AMI Meter Data Ops. Organization and associated processes to ensure the integrity, reliability, accuracy and availability of the meter data.
 - Management Analyst I for Utility Technology Services; This position is responsible for the resource coordination and capacity planning, planning and facilitation of project meetings, developing stakeholder communication materials.
 - Management Analyst I for Utility Technology Services; This position is responsible for AMI Program budget and analytics, development and coordination of reporting for AMI Operations – including managing the benefits realization and performance scorecards for the AMI program and organization, and developing reporting materials for the Executive Steering Committee and Business Advisory Council.
 - Management Analyst III for Tacoma Water; This position is responsible for supporting the AMI program, the Tacoma Water AMI team, coordinating program activities, resources, and communication. Acting as a SME for the AMI Program and technical implementation, providing analysis, information, and technical assistance in the development of program work-streams.
 - Management Analyst III for Tacoma Water; This position is responsible for field and office work related to the Water AMI meter implementation. Acting as a SME for the AMI Program, providing analysis, information, and technical assistance in the development and implementation of program work-streams.
 - Two Water Service Workers for Tacoma Water; These positions are field staff members responsible for performing planned and emergency response at individual water services before and during the field deployment of water meters. A majority of this position's work will occur in preparation for and throughout the meter deployment project phase.
 - Two Utility Service Workers for Tacoma Water; These positions are field staff members responsible for performing planned and emergency support at individual water services and meters before and during the field deployment of water meters. A majority of this position's work will occur in preparation for and throughout the meter deployment project phase.
 - Water Meter Repair Worker for Tacoma Water; This position is a field staff member responsible for performing planned and emergency response at individual water meters before and during the field deployment of water meters. A majority of this position's work will occur in preparation for and throughout the meter deployment project phase.
 - Lead Meter Technician for Tacoma Power; This position is responsible for acting as lead for Tacoma Power Meter Team, coordinating program activities, resources, and communication. Acting as a SME for the AMI Program, providing analysis, information, and technical assistance in the development of AMI programs.
 - Management Analyst I for Tacoma Power; This position is responsible for office work related to Power. Acting as a SME for the AMI Program, providing analysis, information, and technical assistance in the development of programs and operational support. This role will provide support by managing and tracking problems from the field.

3. Summarized reason for resolution:

The Advanced Metering Infrastructure (AMI) Project will upgrade power and water meters across Tacoma Public Utilities' Service Territory at all homes and business. This is required to address an aging meter population, meet customer needs with time access to consumption data, and align TPU with the metering technology common to other utilities in the region. This request to expand the resolution will support Customer Service to convert 10 permanent positions into Projects of Limited Duration as positions are vacated by incumbents. It will also support the AMI Program Management Team to hire a Management Analyst I to assist the coordinating and managing of meetings, resources, and administrative tasks, a Management Analyst I to manage Budget and Analytics, and the Deployment Manager, RF/Communications Engineer, and the MDMS/IT Lead for the integration and implementation phases of the project. It will enable Tacoma Water to hire two Management Analyst III's to support both AMI and Water as a SME and an Engineer for field and office work to support both Water and the AMI Program, along with Two Water Service Workers, Two Utility Service Workers, and a Water Meter Repair Worker. It will also enable Tacoma Power to hire an AMI Electric Lead to act as a lead and SME for the Meter Team and a Management Analyst I to responsible for the field support of managing and tracking problems. Funding has been included in Tacoma Power's and Tacoma Water's 2019/2020 O&M and Capital budgets for these new positions except for the two UTS MA I and Power Lead Meter Technician. The AMI Project budgeted four positions for 19/20 that included an Engineering Sr. Principal, Power Engineer III, IT Analyst SR, and Power Eng IV, these new positions will supplement areas of need that have been identified after the original request was made.

4. Attachments:

- a. Memo to Jackie Flowers, Director of Utilities/CEO from Chris Robinson, Power Superintendent/COO, Scott Dewhirst, Water Superintendent, Steve Hatcher, Manager or Customer Service dated November 30th, 2018

5. Funds available Proposed action has no budgetary impact

Funds for the integration and implementation phases of the Special Project are included in the approved 2019-20 Capital Budgets for Tacoma Power and Tacoma Water. Additional funds will need to be made available for the new positions

6. Deviations requiring special waivers:

<p>Originated by:</p> <p style="text-align: center;"><i>John Lawrence</i></p> <p style="text-align: center;">Section Head</p>	<p>Requested by:</p> <p style="text-align: center;"><i>Scott Dewhirst</i></p> <p style="text-align: center;">Division Head</p>	<p>Requested by:</p> <p style="text-align: center;"><i>Chris Robinson</i></p> <p style="text-align: center;">Division Head</p>
<p>Requested by:</p> <p style="text-align: center;"><i>Steve Hatcher</i></p> <p style="text-align: center;">Division Head</p>		<p>Approved:</p> <p style="text-align: center;"><i>Jackie Flowers</i></p> <p style="text-align: center;">Director of Utilities</p>



TO: Jackie Flowers, Director of Utilities

FROM: Chris Robinson, Power Superintendent
Scott Dewhirst, Water Superintendent
Steve Hatcher, Customer Services Manager

DATE: January 3, 2019

RE: Request for Resolution to establish a new "Special Project of Limited Duration" in support for TPU's Advanced Metering Infrastructure Program.

RECOMMENDATION: Tacoma Public Utility is requesting to establish a new "Special Project of Limited Duration" to hire 26 positions in support of the Advanced Metering Program. These positions will support the systems integration and deployment phases of the program beginning January 2019 through 2022.

EXPLANATION:

Tacoma Public Utilities plans to deploy Advanced Metering Infrastructure (AMI) across its entire water and electric service territories. The AMI Program will involve replacing all non-communicating power and water meters with advanced two-way communicating electric (with disconnect) and water meters, and installing new AMI two-way communication modules on water meters that are not replaced. AMI technology will capture interval data, enable two-way communications, include remote capabilities, and provide advanced outage/issue detection and verification. Advanced metering will modernize utility operations and improve services to customers.

This is required to address an aging meter population, meet customer needs with time access to consumption data, and align TPU with the metering technology common to other utilities in the region.

The Advanced Metering Infrastructure Program's objective is to plan, design, build, implement, and stabilize a comprehensive advanced metering solution for TPU that will be critical for delivering a range of benefits to the utilities and their customers.

As a transformative initiative, the AMI Program will require a significant effort across Tacoma Public Utilities to implement the new processes, applications, technologies, and integrations needed to fully enable the functions and features of the AMI solution. In addition, customer and stakeholder engagement and organizational change management will be essential to project success.

After extensive resource planning and mitigation efforts, Tacoma Public Utilities recommends approval of the designation, which includes the transfer of 10 temporary positions to Project of Limited Duration and providing the hiring of 16 employees within UTS, Tacoma Water, Tacoma Power and the Customer Service department. Briefly, the 26 roles and services provided are described;

- Convert 10 permanent Customer Service Meter Reader Positions to Project Status of Limited Duration as positions are vacated by incumbent. These positions would continue to report to Customer Service and are necessary for supporting the daily meter read collection services.
- Two Management Analyst I for Customer Service (CS); These positions would report to the CS project team and are necessary to document and process map internal CS processes and hand offs within Customer Services and all TPU divisions. This work is an important and essential step to capture necessary changes for the successful implementation of AMI. Failure to approve these temporary positions adds significant risk to CS' ability to properly serve the customer base with solid, reliable processes and systems.
- Engineering Sr. Principal for Utility Technology Services; This position is responsible for leading the planning and supervision of the meter and network deployment.
- RF/Communications Engineer for Utility Technology Services; This position is responsible for the analysis, design review, implementation, optimization, monitoring and enhancement of the wireless AMI network.
- MDMS/IT Lead for Utility Technology Services; This position is responsible for implementing the new AMI Meter Data Ops. Organization and associated processes to ensure the integrity, reliability, accuracy and availability of the meter data.
- Lead Meter Technician for Tacoma Power; This position is responsible for acting as lead for Tacoma Power Meter Team, coordinating program activities, resources, and communication. Acting as a SME for the AMI Program, providing analysis, information, and technical assistance in the development of AMI programs.
- Management Analyst I for Tacoma Power; This position is responsible for office work related to Power. Acting as a SME for the AMI Program, providing analysis, information, and technical assistance in the development of programs and operational support. This role will provide support by managing and tracking problems from the field.
- Management Analyst I for Utility Technology Services; This position is responsible for the resource coordination and capacity planning, planning and facilitation of project meetings, developing stakeholder communication materials.
- Management Analyst I for Utility Technology Services; This position is responsible for AMI Program budget and analytics, development and coordination of reporting for AMI Operations – including managing the benefits realization and performance scorecards for the AMI program and organization, and developing reporting materials for the Executive Steering Committee and Business Advisory Council.
- Management Analyst III for Tacoma Water; This position is responsible for supporting the AMI program, the Tacoma Water AMI team, coordinating program activities, resources, and communication. Acting as a SME for the AMI Program and technical implementation, providing analysis, information, and technical assistance in the development of program work-streams.
- Management Analyst III for Tacoma Water; This position is responsible for field and office work related to the Water AMI meter implementation. Acting as a SME for the AMI Program, providing analysis, information, and technical assistance in the development and implementation of program work-streams.
- Two Water Service Workers for Tacoma Water; These positions are field staff members responsible for performing planned and emergency response at individual water services before and during the field deployment of water meters. A majority of this position's work will occur in preparation for and throughout the meter deployment project phase.
- Two Utility Service Workers for Tacoma Water; These positions are field staff members responsible for performing planned and emergency support at individual water services and meters before and during the field deployment of water meters. A majority

of this position's work will occur in preparation for and throughout the meter deployment project phase.

- Water Meter Repair Worker for Tacoma Water; This position is a field staff member responsible for performing planned and emergency response at individual water meters before and during the field deployment of water meters. A majority of this position's work will occur in preparation for and throughout the meter deployment project phase.

HISTORY: In 2014, UTS conducted an assessment and prepared a strategy towards implementing Advanced Metering Infrastructure across Tacoma Power and Tacoma Water. In 2015, an initial business case was developed and refined further in 2016. The business case was supported with customer research on level of interest of products and services enabled by AMI and aligns with new technology initiatives in Tacoma Power's and Tacoma Water's Strategic Plans.

PROJECT MANAGER: Andre' Pedefferri, Utility Technology Services, Power UTS AMI Program, (253) 502-2308

AUTHORIZED:



Jackie Flowers
Director of Utilities



DRAFT Board Action Memorandum

TO: Jackie Flowers, Director of Utilities
COPY: Charleen Jacobs, Director and Board Offices
FROM: Scott Dewhirst, Water Superintendent/COO
Andre' Pedferri, Advanced Metering Program Manager
MEETING DATE: October 14, 2020
DATE: September 17, 2020

SUMMARY: Tacoma Public Utilities (TPU) and Tacoma Water request a resolution approving the application for grant funds through the United States Department of Interior, Bureau of Reclamation for the WaterSMART: Water and Energy Efficiency Grants program for fiscal year 2021. Funds are requested to support TPU's Advanced Metering Infrastructure (AMI) Project's deployment phase, for the installation of approximately 107,000 advanced water meters and modules.

BACKGROUND: Tacoma Public Utilities plans to deploy Advanced Metering Infrastructure across its entire water and electric service territories, replacing or upgrading all non-communicating water and power meters with advanced two-way communicating technology. To support this effort, Tacoma Public Utilities/Tacoma Water has applied for \$2 million from the Bureau's WaterSMART grant program specific to the deployment of approximately 107,000 water meters/modules. This grant, when complimented with the planned utility investment of approximately \$25 million for water meter/module deployment, will help provide more efficient service to drinking water customers served by TPU in the City of Tacoma and throughout the region.

Procedures established by the Bureau of Reclamation require a resolution certifying the approval of the grant application by the applicant's governing board be submitted as part of the application package to the Federal Government. If selected for award, TPU will enter into an agreement with the Federal Government to carry out the identified project.

In accordance with Bureau procedures, a resolution is requested stating that:

1. The Tacoma Public Utility Board has reviewed and supports the filing of the application through the Bureau of Reclamation for the WaterSMART: Water and Energy Efficiency Grants program for Fiscal Year 2021 for the TPU/Tacoma Water "Advanced Metering Infrastructure Deployment Project."
2. The Tacoma Public Utility Board certifies the capability of TPU/Tacoma Water to provide the amount of funding and/or in-kind contributions specified in the application funding plan.
3. Tacoma Public Utilities/Tacoma Water will work with the Bureau of Reclamation to meet established deadlines for entering into a grant or cooperative agreement.
4. The Tacoma Public Utility Board identifies the Utilities Director, or their designee, with legal authority to enter into an agreement.

Completion of TPU's AMI water meter/module installations is planned for late 2022 and will be coordinated with similar upgrades to TPU's electric meters. The AMI Project supports TPU's long-term goal of water supply reliability and efficient water management. TPU's advanced metering program will provide multiple improvements to customers including:

- The ability of the advanced meter system to better detect leaks and provide that information to customers to take prompt action
- A new 'customer portal' that will provide customers with near real time information on their water usage so that they can make more informed choices about their consumption



DRAFT Board Action Memorandum

- The replacement of water meters with more accurate meters that will better identify actual water usage

Additionally, this project will lead to a number of other measurable efficiency improvements described in the grant application. Those include:

- Estimated water savings of 2,049.5 acre-feet per year (AFY)
- Estimated savings of nearly 24,000 gallons of gasoline per year in meter reading and maintenance vehicle consumption
- Estimated emission reductions on the order of 35.1 metric tons of CO₂ per year

These savings will also reduce the amount of water pumped out of the Green River, TPU's primary drinking water source, and provide energy savings associated with pumping reduction. Additionally, these water usage reductions will provide flexibility for ongoing initiatives aimed at improving the health of several threatened species including Bull Trout, Puget Sound Chinook, and Puget Sound Steelhead.

Advanced Metering is an essential building block of TPU's infrastructure that enables significant conservation measures, improves the customer experience, and will modernize TPU services now and in the future.

ARE THE EXPENDITURES AND REVENUES PLANNED AND BUDGETED?

Yes, funds for AMI water meter/module deployment are budgeted within the planned and approved 2019-2020 biennium Advanced Metering Program and its contingency. Funds for the 2021-2022 biennium are planned and subject to budget approval.

IF THE EXPENSE IS NOT BUDGETED, PLEASE EXPLAIN HOW THEY ARE TO BE COVERED.

N/A.

IF THE ACTION REQUESTED IS APPROVAL OF A CONTRACT, INCLUDE LANGUAGE IN RESOLUTION AUTHORIZING \$200,000 INCREASE IN ADMINISTRATIVE AUTHORITY TO DIRECTOR?

N/A.

ATTACHMENTS: TPU/Tacoma Water's WaterSMART Grant Application, "Advanced Metering Infrastructure Deployment Project"

CONTACT: Andre' Pedefferri, Utility Technology Services, Advanced Metering Program Manager, (253) 502-8997; Matt Hubbard, Utility Technology Services, Power Engineer, (253) 345-1662

United States Senate

WASHINGTON, DC 20510-4704

COMMITTEES:
APPROPRIATIONS
BUDGET
HEALTH, EDUCATION, LABOR,
AND PENSIONS
VETERANS' AFFAIRS

September 16, 2020

Dear Commissioner Duffman,

I write in support of an application submitted by Tacoma Public Utilities/Tacoma Water (TPU) for the Bureau of Reclamation's *WaterSMART* grant program for the Advanced Metering Infrastructure (AMI) project.

TPU is seeking funding to support their long-term goal of water supply reliability and efficient water management. The AMI project would provide multiple improvements to customers including an advanced meter system that would be able to better detect leaks and provide that information to customers to take action. It would create a new customer portal that would provide users with information on their water usage and finally, it would replace water meters with more accurate ones that would be better able to identify actual water usage.

savings of 2,049.5 acre-feet per year, nearly 24,000 gallons of gasoline per year in meter reading and maintenance vehicle consumption, and emissions reductions. These savings would reduce the amount of water pumped out of the Green River, TPU's primary drinking water source, and provide energy savings associated with pumping reduction. Additionally, these water usage reductions would provide flexibility for ongoing initiatives aimed at improving the health of several threatened species including bull trout, Puget Sound Chinook, and Puget Sound steelhead.

Thank you for your consideration of TPU's application. Please contact Bree Rabourn in my Seattle office at 206-553-0724 with any questions.

Sincerely,



Patty Murray
United States Senator

DEREK KILMER
6TH DISTRICT, WASHINGTON

COMMITTEE ON APPROPRIATIONS
DEFENSE SUBCOMMITTEE
INTERIOR, ENVIRONMENT,
AND RELATED AGENCIES SUBCOMMITTEE
ENERGY AND WATER
DEVELOPMENT SUBCOMMITTEE

Congress of the United States
House of Representatives
Washington, DC 20515-4706

September 17, 2020

OFFICES:
1410 LONGWORTH OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-5916

950 PACIFIC AVENUE
SUITE 1230
TACOMA, WA 98402
(253) 272-3515

345 6TH STREET
SUITE 500
BREMERTON, WA 98337
(360) 373-9725

www.kilmer.house.gov

SEP 28 '20 PM 2:21

The Honorable Brenda Burman
Commissioner
Bureau of Reclamation
1849 C Street NW
Washington, DC 20240-0001

Dear Commissioner Burman:

I write to express my strong support for the application submitted by Tacoma Public Utilities/Tacoma Water (TPU) to the Bureau of Reclamation's WaterSMART grant program. This \$2 million grant, when complemented with planned utility investment of approximately \$25 million, will help provide more efficient service to the more than 107,000 drinking water customers served by TPU in the City of Tacoma and throughout the region.

Completion of TPU's advanced meter installation is planned for late 2022 and will be coordinated with similar upgrades to TPU's electric meters. This project supports TPU's long-term goal of water supply reliability and efficient water management. TPU's advanced meter program will provide multiple improvements to customers including the ability to better detect leaks and provide that information to customers to take prompt action, a new customer portal that will provide customers with near real time information on their water usage so that they can make more informed choices about their consumption, and the replacement of water meters with more accurate meters that will better identify actual water usage.

Additionally, TPU's project will lead to a number of other measurable efficiency improvements. Those include estimated water savings of 2,049.5 acre-feet per year (AFY), an estimated savings of nearly 24,000 gallons of gasoline per year in meter reading and maintenance vehicle consumption, and estimated emission reductions on the order of 35.1 metric tons of CO₂ per year.

These savings will also reduce the amount of water pumped out of the Green River, TPU's primary drinking water source, and provide energy savings associated with pumping reduction. Furthermore, these water usage reductions will provide flexibility for ongoing initiatives aimed at improving the health of several threatened species including Bull Trout, Puget Sound Chinook, and Puget Sound Steelhead.

Advanced Metering is an essential building block of TPU's infrastructure that enables significant conservation measures, improves the customer experience, and will modernize TPU services now and in the future. For these reasons, I urge your full and fair consideration of Tacoma Public Utilities' application to the WaterSMART grant program. Should you have any questions, please contact Evan Smith in my Tacoma district office at 253-272-3515 or Evan.Smith@mail.house.gov.

Sincerely,



Derek Kilmer
Member of Congress