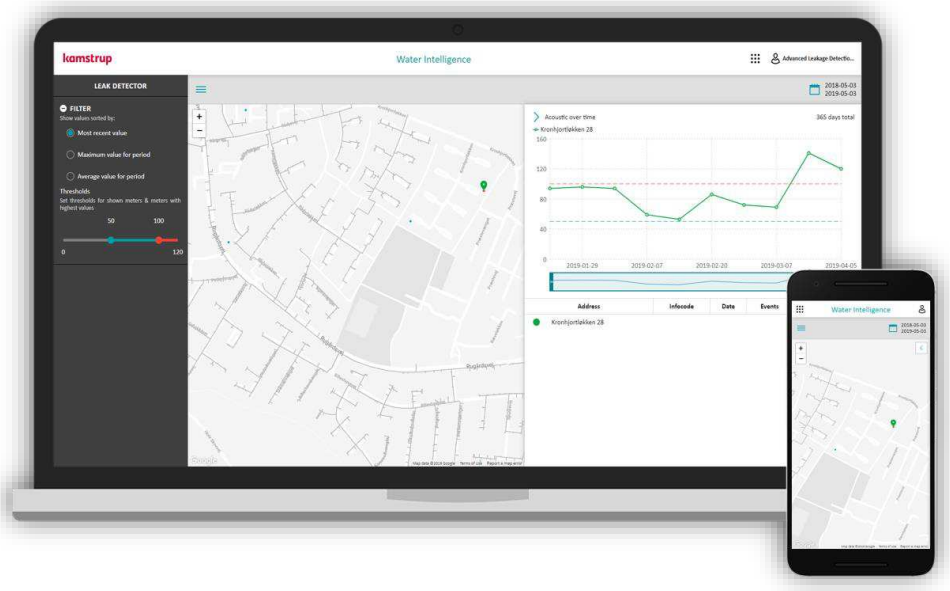
Installing Smart Meters in El Paso, Texas, to Save Water and Energy

July 28, 2022



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Date:	July 28, 2022
Applicant Name:	El Paso Water
City:	El Paso
County:	El Paso County
State:	Texas
Applicant Type:	Category A

Project Summary

El Paso Water Utilities Public Service Board (EPWater) supplies potable water to approximately 96 percent of the population of El Paso County and provides 25 percent of the water needs of Fort Bliss, which is the second largest Army installation in the United States. Drought cycles in the Far West Texas region have caused the surface water supply from the Rio Grande to become uncertain. During the past ten years, continued droughts have caused a 30 percent per year (on average) reduction in surface water availability to El Paso. Groundwater supplies from the Hueco Bolson aquifer are also threatened by over-pumping and brackish water intrusion. As such, Advanced Metering Infrastructure (AMI) technologies that help the utility to detect and fix leaks before losing millions of gallons of water is a critical tool to reducing water loss and conserving valuable water resources. With this application, EPWater seeks $5 million of WaterSMART funding to install 60,000 AMI smart meters over three years to replace traditional meters at customer homes and businesses and to implement a customer portal that enables customers to track consumption in real time. EPWater previously conducted a smart meter pilot and is in the process of installing 20,000 meters this year. Since about 36,000 meters will have been installed prior to this project, at the completion of this project, 96,000 AMI meters will be installed out of a total multi-year replacement project of 200,000 AMI meters. The benefits of the smart meter program include water conservation, energy savings, reduced greenhouse gas emissions, and customer engagement.

Water savings: The AMI implementation to be funded by the grant (with EPWater) will result in water savings of 1,285 Acre Feet per Year (AFY). The full implementation will result in savings of 4,440 AFY. These savings are from a combination of leak detection/repair, meter accuracy improvements and conservation response from customer portal

In 2021, EPWater's total water loss exceeded 7.39 billion gallons (27,229 acre-feet per year (AFY)). This allows source water to remain in the Rio Grande and Hueco Bolson aquifer. This is a first step in a multi-phase, multi-year effort that will ultimately replace 200,000 meters and save 4,440 AFY – reducing 16 percent of total current water losses (4,440/27,229). With the project, online tools will enable the customer service team to monitor water consumption in real time and immediately identify spikes, which are usually associated with leaks. This will enable immediate notification of customers of possible leaks. Additionally, in the final year of the project, all customers with smart meters can download an app on their phones or use personal computers to monitor consumption, which will increase conservation behaviors.

Energy Savings: Equipping 60,000 homes with smart meters will also enable EPWater to save 49,450 kilowatt hours (kWh) of electricity and remove six vehicles needed to read conventional meters, thereby decreasing fuel consumption and curbing 27.6 metric tons of carbon dioxide per year. The full implementation with complete change-over to AMI meters would save 92 metric tons of caron dioxide per year.

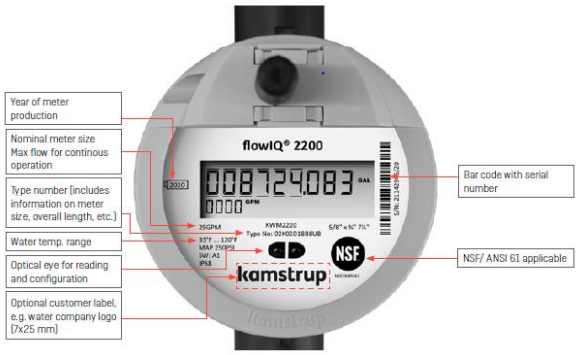
Cost
The total cost of this project is estimated to be $13.89 million.

Schedule
Project Timeframe: 36 months; Completion Date: December 2025

Federal Facility
The project is not located on a federal facility.

Technical Project Description

EPWater has begun an AMI meter replacement project, and an estimated 36,000 AMI meters will be fully installed by the end of 2022. As part of this grant application, EPWater proposes to install an additional 60,000 AMI smart meters over three years as part of this project at homes and businesses in older sections of El Paso that are more prone to pipe corrosion and leaks. Some of the technical specifications of this innovative technology include:



- **Ultrasonic Measurement:** Provides greater accuracy and reliability of water usage.
- **Integrated Wireless Communication:** Able to electronically transit water usage hourly.
- **Reverse Flow Flag:** Notifies the utility of meters reporting reads lower than the previous hour.
- **Acoustic Leak Detection:** Listens for leaks in utility infrastructure 26 times per day at each service location.
- **Notifications of Leaks:** Real-time alerts to customer service of potential leaks, which can be assessed and then shared with the customer.
- **Analytics:** Provides better understanding of what is happening in the distribution network for analysis and visualization. Allows utility to proactively respond to infrastructure leaks and bursts.
- **READy:** A solution for reading meters remotely and optimizing the distribution network.
- **Water Intelligence:** Provides an overview of the distribution network split into districts with detailed information on consumption and water loss.
- **Data Logging:** Provides 100 days of hourly consumption information that can be used to settle billing disputes quickly and monitor adherence to imposed water restrictions.

Collector sites will be established in targeted community areas (on existing water towers or other water infrastructure) to gather wireless information from the installed smart meters within their range. These collector sites will subsequently relay data to a cloud-based software application that is integrated with EPWater's billing and customer service systems. This automated analytics tool, hosted in a secure data center, will collect water usage information, identify abnormal usage, and alert the utility's customer service team and customers who have signed up for the portal of potential leaks. Key features include:

- **Complete Integration:** The analytics software supports "single sign on" (SSO) technologies and will connect seamlessly with billing, meter data, and SCADA systems.
- **Cloud Computing:** The software is publicly available on the Internet and does not require the utility to setup or maintain its own servers, hardware, or software.
- **Highly Secure:** Because the analytics software houses sensitive customer information including names, addresses, email addresses, and phone numbers, the application and hosting infrastructure adhere to strict security standards and is subject to regular Statement on Standards for Attestation Engagements no. 16 (SSAE-16) audits.

- **Easily Accessible:** The software is viewable in all major browser software packages including the current and the two prior versions of Microsoft Edge, Apple Safari, Google Chrome, Firefox, and Opera.
- **Customizable:** Utility customers can configure preferences for receiving emails, texts, or voice calls regarding high usage conditions, water restriction compliance violations, leak alerts, and abnormal usage notifications.

Installation process: The replacement project includes the following steps by EPWater work crews: 1) The inlet and outlet couplings are loosened, and the old meter is removed; 2) Using fresh gaskets, the new meter is connected to the inlet and outlet couplings. The couplings are tightened after checking for leaks and the valve is opened.

The H_2O Customer Portal is a cloud-based solution that will help EPWater turn its data into efficiency gains, improved customer satisfaction and enhanced conservation efforts.

- **H_2O Analytic Engine and Kamstrup READy Integration**: The system enables automated processing of in-house billing system and hourly meter data from the Kamstrup READy Manager system. It would provide automated loading and processing of hourly meter readings from the Kamstrup READy system. This analytic tool would be deployed on a cloud-based platform.
- **Customer Portal**: The portal enables browser-based access to account information and notification configuration options. The portal can operate via the web, Android and iOS apps with utility branding. It is fully integrated with the analytics engine and notification module.
- **Automated Alerts**: The system would allow automated phone, text and email alerts for any abnormal usage alerts.
- **Annual Support**: Support services are provided by phone and using network-based diagnostic tools.

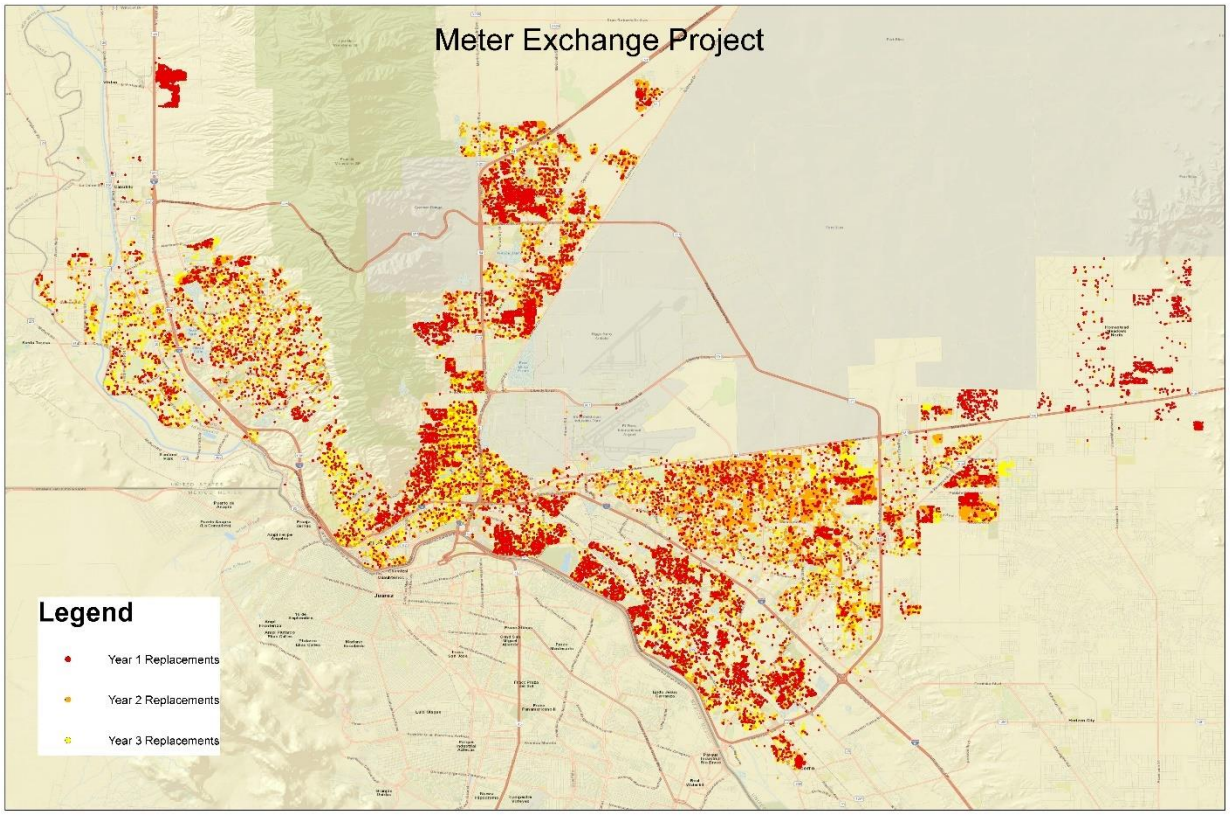
In addition to the work required by the Information Technology team to integrate the portal with billing and customer service systems, EPWater will launch a public outreach campaign to customers with smart meters to encourage them to download the app to their device of choice.

Project Location

The “Installing Smart Meters in El Paso, Texas, to Save Water and Energy” project is located within the City of El Paso, Texas, within El Paso County. Smart meter installations will take place in 60,000 homes. Most of the work will be coordinated from EPWater’s location at 31°46’23.5” N latitude and 106°22’32.5” W longitude. The map below shows the El Paso Water service area and locations for the replacements. The replacements prioritize replacement of the oldest meters.

For the scope of this project, 60,000 traditional meters will be replaced with AMI smart meters:

- In year one of the project, 20,000 of the oldest meters will be replaced. Those are indicated in red in the map below.
- For year two of the project, 20,000 of the next oldest meters will be replaced. Those are indicated in orange.
- For year three of the project, 20,000 of the next oldest meters will be replaced. Those are indicated in yellow.



Evaluation Criteria

E.1.1. Evaluation Criterion A—Quantifiable Water Savings (28 points)

1) Describe the amount of estimated water savings.

The "Installing Smart Meters in El Paso, Texas, to Save Water and Energy" project aligns with Executive Order 14008, tackling the climate crisis with tangible water conservation and water use efficiency efforts in the arid Far West Texas region. This data collection will enable EPWater to track water consumption on private property and within EPWater infrastructure piping to detect abnormal spikes in water consumption. New smart meters will also record water usage more accurately. AMI technology and a new customer portal will help EPWater save 1,285 AFY of water as part of this project for proposed grant funding. This savings comes from leak detection and repair, meter accuracy improvements and conservation response to AMI smart meters and the customer portal. Once EPWater completes the full replacement project (200,000+ smart meters), an estimated 4,440 AFY of water will be saved.

The EPWater customer service team will monitor for abnormal consumption spikes and notify customers according to their preferences (text, email, phone). Additionally, a customer portal will be made available in the third year of this project to customers who are interested in tracking their consumption in real time. Customer monitoring of consumption will result in reduced consumption in the interest of saving water and money on water bills.

2) Describe current losses.

a. Explain where current losses are going (e.g., back to the stream, spilled at the end of the ditch, seeping into the ground)?

Current water losses in the El Paso region are usually the result of leaking pipes (distribution and service lines), leaking irrigation systems, or in-home leaks. EPWater has implemented an acoustic leak detection system for its distribution system that is effective for small diameter pipes in the distribution system. It does not work for larger diameter pipes, service lines, or private property leaks. Distribution system pipe leaks, including service line leaks on private property, are often difficult to detect because the supply pipes are usually buried at least 3 feet below the surface. As a result, this unbilled water seeps into the dry desert layers of soil above a clay-like layer that limits any aquifer recharge benefit, and the water can eventually puddle or pool above the surface, where it usually evaporates. Most of this water is not recoverable.

AMI smart meter replacement offers the capability to identify leaks within customer households, leaks in irrigation systems, and leaks of service lines. On the customer side of the meter, irrigation leaks often evaporate, seep into the ground, or occasionally find their way to storm drains. In-home plumbing leaks sometimes make their way into the wastewater treatment system.

b. If known, please explain how current losses are being used. For example, are current losses returning to the system for use by others? Are current losses entering an impaired groundwater table becoming unsuitable for future use?

For indoor plumbing water losses, such as with toilets and faucets, some water enters the wastewater system, and at least some of that will be reclaimed for irrigation of parks/golf courses and/or for industrial use. El Paso's water losses from service lines or outdoor water use do not provide a benefit since impermeable layers of clay prevent infiltration to the water table or aquifer, and water ponds above-ground. Some quantity makes its way through storm drains to detention basins, and some may drain to the Rio Grande riverbed, where it may provide very limited ecosystem benefits.

c. Are there any known benefits associated with where the current losses are going? For example, is seepage water providing additional habitat for fish or animal species?

Given water scarcity in El Paso, water losses are a threat to the resiliency of the region. Minimal benefits of reclamation resulting from indoor leaks to the wastewater system do not justify the leaks or any water loss. For irrigation system leaks, far more evaporates than what makes its way through storm drains to the Rio Grande, and the quality of the water that make its way to the riverbed is not necessarily beneficial since it is polluted with residues of oil from streets.

El Paso is perennially under drought or near-drought conditions. Average rainfall is about 9 inches annually. Since 2013, the United States Drought Monitor has registered the Rio Grande watershed in perpetual states of drought intensity. Drought cycles have threatened the El Paso community's ability to depend upon the Rio Grande for water supply. During the past ten years, continued droughts have caused a 30 percent per year (on average) reduction in surface water availability to El Paso. In 2022, El Paso is only expected to see about 20 percent of normal surface water from the Rio Grande. The Hueco Bolson aquifer is also seeing a steady decline.

3) Describe the support/documentation of estimated water savings.

The "Installing Smart Meters in El Paso, Texas, to Save Water and Energy" project will save an estimated 1,285 AFY of water in four primary ways:

- Smart meters will enable customer service to alert customers to service line leaks, irrigation leaks and burst pipes, allowing customers to take quick action;
- Smart meters will allow EPWater to identify small main line leaks through so that infrastructure leaks may be proactively identified and repaired;
- The AMI system will more accurately measure actual water usage;
- The utility will introduce a new customer portal, actively engage with customers to encourage use of the portal. Use of the portal will lead to greater awareness of consumption and better water conservation behaviors.

The following benchmark and assumptions shaped the calculation of water savings:

- **Water loss benchmark:** A 2016 Water Research Foundation "Residential End Uses of Water" report[1] found that the average residential customer has 12 percent of their water use attributable to leaks.
- **Water savings benchmark**: El Paso Water's consultant Secure Vision of America has completed AMI meter installation (same technologies with ultrasonic meter, acoustic leak detection and H2O Analytics) for 65 utilities across Arkansas, Alabama, Oklahoma, and Texas. Secure Vision says they have observed a variable savings number, but the average reduction in unaccounted for water loss is 9.13%. Secure Vision said the factors contributing to variability include age and condition of meters, efficiency of pumps and response time for repairs.

In assessing the two benchmarks above, the utility observed:

- Water loss and AMI smart meter implementation water savings are not likely to be the same number since 100% of leaks are not likely to be fixed.
- EPWater's current customer service leak notifications (after monthly billing and not in real-time) would suggest that EPWater water losses are slightly below the national average and estimated to be closer to 10 percent rather than 12 percent of water use attributable to leaks.
- EPWater is expecting that AMI smart meter implementation will contribute to an estimated 80 percent rate of repairs/fixed leaks (of the 10 percent water loss due to leaks) for an estimated 8 percent reduction on water loss related to leaks. This percentage is very close to the Secure Vision average reduction in unaccounted water loss, but the utility considers the 8 percent reduction a defensible, sound estimate.

In addition to calculations for reduced water loss related to leak detection, the Municipal Metering section below provides additional details on savings related to metering accuracy and savings related to a new customer portal.

Since reduction in leaks is central to water loss reductions, the next section goes into more detail on how leak detection and repairs will occur

Improved Leak Detection and Repairs

El Paso is an economically-disadvantaged community, and a large segment in the community has lagged in terms of regular access to the Internet. That has been changing in recent years with wider adoption of smart phones. Currently, about 60 percent of EPWater customers pay bills online. This number has increased by about 10 percent over the last five years. With the initial two years of this AMI smart meter roll-out, dashboards, analytics, and alerts will only be available for trained customer service staff to provide alerts to customers, but in the third year of implementation, customers will also have access to download a smart phone application with their own dashboard and analytics to personally monitor and engage in household consumption patterns.

[1] https://www.waterrf.org/research/projects/residential-end-uses-water-version-2

The AMI smart meter system will enable customer service representatives to monitor for leaks and anomalies, receive alerts on abnormal spikes and consumption, and provide alerts to customers in the way that they want to be notified – by text, email, or phone. Additionally, customer service field staff will provide door hangers for residents with the biggest risks of leaks. This is one of the most effective means of tracking for leaks because staff monitor the system every day. Customer engagement with a new smart phone application will provide an additional tool for the toolbox for tracking consumption and adjusting water use to save water and money.

4) Please address the following questions according to the type of infrastructure improvement you are proposing for funding:

<u>Municipal Metering</u>

a. How has the estimated average annual water savings that will result from the project been determined? Please provide all relevant calculations, assumptions, and supporting data.

AMI meters will help EPWater save 1,285 AFY through leak detection and repairs, meter accuracy improvements and conservation response of AMI smart metering.

Based on the following statistics, the utility has calculated estimated water usage and annual water savings:

- El Paso's per capita consumption in 2021 was 137 gallons per person per day, and residential consumption is 72 gallons per person per day.
- El Paso has an average of 3.1 persons per household; consumption is estimated at 223.2 gallons per day (GPD) for the average household/meter.
- With an estimated 8 percent loss from leaks (223.2 x .08), this translates into 17.8 gallons of average loss per home per day.
- Since the three-year implementation will affect 60,000 meters/homes, the potential water loss from those homes (17.8 x 60,000) is 1,068,000 gpd and 389,820,000 million gallons per year, when multiplied by 365.
- Assuming that 80 percent of leaks are repaired (389,820,000 x.8), that comes out to 311,856,000 gallons saved annually or 957 AFY of leak detection savings each year.
- Using this number, EPWater estimates that the full-scale implementation of 200,000 AMI meters (multi-phase project) could result in 3,190 AFY of leak detection savings.
- The customer portal will be rolled out at the beginning of year three of the project. At that point, about 76,000 customers will have smart meters (36,000 smart meters installed prior to this project + 40,000 installed in first two years of project. Because it is the first year of rollout, EPWater is making a conservative estimate of 3 percent of customers who access, download and use the portal application. AWWA estimates a water savings of about 5 percent of those who use the portal versus those who do not. At 3 percent adoption, that would come out to 2,280 customers for the first year. A 5 percent savings based on the average household consumption of 223.2 gpd comes out to 11.16 gpd. If 2280 customers save 11.16 gpd, then the portal would yield savings of 25,444 gallons per day or 9,287,352 gpd per year, which translates into 28 AFY.

- Once AMI smart meters are fully implemented and available to 200,000 customers, the customer portal will yield greater water savings. If only 10 percent access, download and use the portal application (20,000 customers), and water savings remain at 5 percent (223.2 gpd x .05) resulting in 11.16 gpd savings, then daily water savings as a result of the smart portal could be 223.200 gpd and annual water savings could be 81,468,000 gallons per year or 250 AFY.

Improved Meter Accuracy

A significant portion of water loss is due to the reduced accuracy of meters as they age. Approximately 30 percent of EPWater's water loss is from apparent losses tied to meter inaccuracies (all sizes and types of meters). While EPWater replaces residential meters every 10 years, the utility consistently observes slight increases in revenue capture of about 2 percent when meters are replaced. While many utilities only replace meters every 20 years (or more) and see significant degradation in meter accuracy, El Paso maintains high accuracy levels. That said, a 2 percent increase in new revenue capture indicates a potential for a 2 percent accuracy correction.

Assuming that Real Meter Accuracy is an average rate of 98 percent, EPWater estimates that increased accuracy and revenue capture – and the potential conservation response expected from customers who see their bills go up – will result in a potential water savings of 300 AFY. See calculation below:

223.2 GPD/meter x 365 days/year x 60,000 meters x .02 (accuracy gap) =
97,761,600 million gallons per year = 300 AFY in meter accuracy water savings

In conclusion, total potential water savings from deployment of the AMI system with portal in year three will be:

957 AFY leak detection savings +
300 AFY meter accuracy savings +
28 AFY customer portal conservation
= 1,285 AFY total water savings

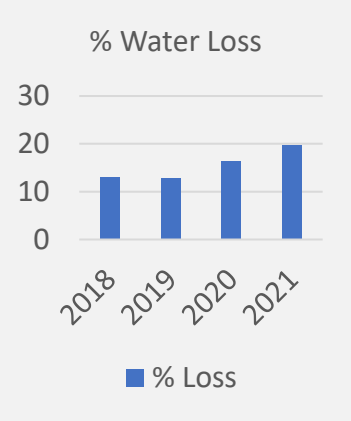
Applying the same formula, for the full implementation of 200,000 meters would result in the following savings: 3,190 AFY (leak detection savings) +1,000 AFY (meter accuracy savings) = 4,190 AFY water savings plus customer portal conservation of 250 AFY will results in total water savings of 4,440 AFY.

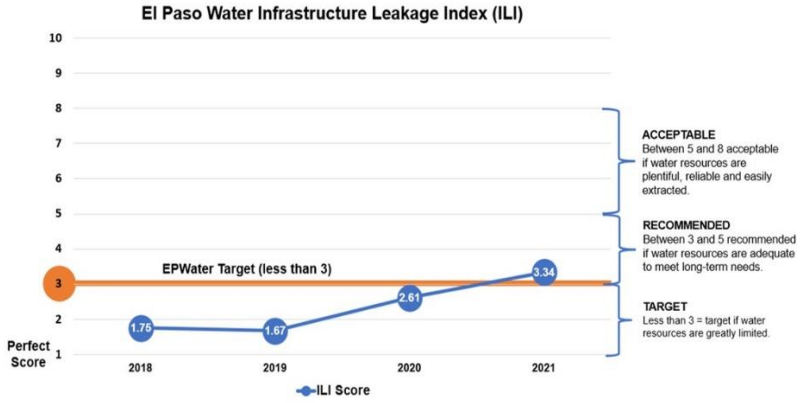
b. How have current distribution system losses and/or the potential for reductions in water use by individual users been determined?

EPWater conducts annual audits to track average water use and changes in non-revenue water. Unaccounted for (or lost water) compares the amount of water produced to metered water and authorized non-metered usage. EPWater tracks both percentage of water loss and maintains an Infrastructure Leakage Index (ILI).

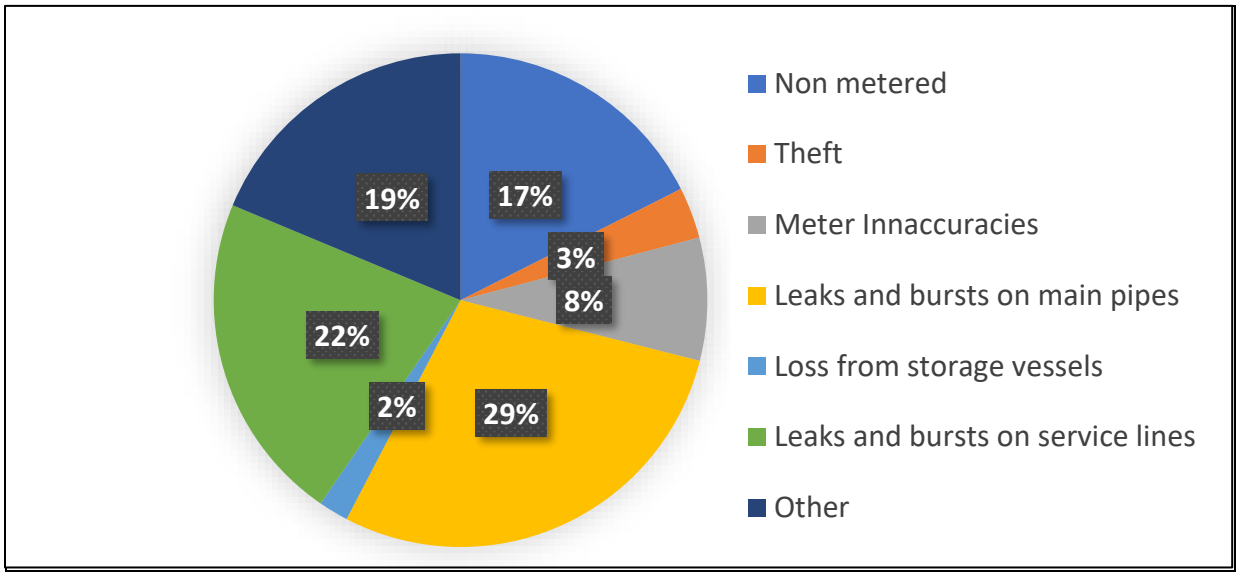
Year	Gallons of Water Lost	Translated to AFY
2018	4,628,740,975	17,059
2019	4,491,966,279	16,555
2020	6,189,524,178	22,811
2021	7,388,575,005	60,439

EPWater experienced higher than normal water loss in 2021. Following are two trend graphs showing water loss.





EPWater consultant Secure Vision, identified potential water loss categories and potential savings as a result of the AMI project. These numbers are based on a national survey of categories of water loss. Service line leak losses alone can be as much as 22 percent; meter losses can contribute as much as 8 percent; and household leaks are likely embedded in the "other" category. See pie chart below.



Source: Secure Vision customer survey (national)

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.

While a study on the region's likely response to AMI smart meters has not been completed, El Paso has a history of responding to calls for conservation. El Paso passed a Conservation Ordinance in 1991. That marked the beginning of a series of initiatives in the community to reduce water consumption. Rebates were offered, water waste was penalized, and communications campaigns publicized the importance of water resources in the desert and emphasized the need to conserve. As a result, the community cut consumption by 35 percent over three decades. The community is very conservation-minded, and EPWater expects a strong and positive reception to smart meters and leak alerts.

To calculate likely savings, EPWater used benchmarks and then adjusted them more conservatively, given the community's current conservation ethic. To validate estimates against benchmarks, the utility looked to leak adjustments and costs of leak adjustment credits, and calculated cost to water savings. See description below.

- In 2020, the EPWater customer service team issued about 4500 leak adjustment credits. Leak alerts are currently provided to customers after monthly readings by meter readers following a spike in water use. Customers are motivated to correct leaks, not just because of the culture of conservation but also because the utility offers leak adjustments with receipts showing plumbing repairs completed.
- Leak adjustments annually total about $1.5 million, costs of lost water that could otherwise have stayed in the aquifer or contributed to drought resilience.
- The estimated costs of lost water do not cover undetected leaks that the new system will find; it does not include unrepaired leaks as some customers have not been able to afford plumbing repairs; and it does not include repairs to utility line leaks that will also be detected from the system.

To the last point, customers contact customer service when they observe leaks near the meter that may be on the utility side of the meter. The utility receives hundreds of calls per month about line leaks near home meters (on the utility side), and there are countless other leaks that go undetected. The AMI smart meters will provide another tool to detect these leaks and allow speedy repairs by the utility.

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 distribution system main meters will be installed, but EPWater does have an acoustic leak detection system in place for small diameter water pipelines in the distribution system.

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

EPWater will replace 60,000 existing meters with a Kamstrup or a similar meter system featuring a model like flowIQ® 2200 smart meters (5/8 x 3/4" and 1" sizes) with ultrasonic smart meter measurement capabilities and acoustic leak detection. Kamstrup AMI, the meter currently used in EPWater's system for a pilot project, is an automated metering infrastructure that achieves a high reading performance with minimal hardware investment. EPWater will procure a system that offers hourly consumption data and analytics to water utilities, enabling water professionals to work more proactively measure and monitor water losses, improve customer communication, and promote conservation.

EPWater will install flowIQ® 2200 (or similar) smart meters in the sizes and quantities listed below:

Size	Number
5/8 x 3/4"	58,000
1"	2,000

These estimates are approximations based upon a preliminary analysis of replacement needs and match the figures within the Project Budget. Any changes in quantities will be shared with the Bureau of Reclamation as EPWater awarded a 10–year sole source contract to Secure Vision in March 2022 for multiple phases of the smart meter installation project.

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

Following American Water Works Association guidelines and Texas Water Development Board reporting requirements, EPWater conducts annual audits of water loss. After AMI installation, the utility will compare the results to demand forecasts over the project period. Analytics tools will also help EPWater to determine the number of identified leaks, estimated water reductions, and the impact of customer water conservation efforts. This information will be compiled in a report and provided to the Bureau of Reclamation. The expectation is that non-revenue water volumes will diminish with the installation of AMI smart meters, and this will result in consumption declines.

E.1.2. Evaluation Criterion B—Renewable Energy (20 points)

E.1.2.1 Subcriterion No. B1: Implementing Renewable Energy Projects Related to Water Management and Delivery

However, El Paso Electric Company – the local power generation and distribution provider for the region – has committed to generating power that is 80 percent carbon free by 2035. EPE plans to meet the goals through continued deployment of renewable energy resources coupled with storage solutions together with use of new fuels and technologies and improved energy efficiency. Because this project provides energy efficiency benefits, it will contribute to EPE's 2035 objectives. See next section for details.

E.1.2.2. Subcriterion No. B.2: Increasing Energy Efficiency in Water Management

Describe any energy efficiencies that are expected to result from implementation of the water conservation or water efficiency project (e.g., reduced pumping).

If quantifiable energy savings are expected to result from the project, please provide sufficient details and supporting calculations. If quantifying energy savings, please state the estimated amount in kilowatt hours per year.

Installing smart meters will also generate additional energy savings. When consumers use less water, the embedded energy necessary to provide that water is avoided, as the utility needs to extract, treat, and distribute less water. Through trading out 60,000 traditional meters for smart meters, improved water conservation will reduce energy demands on EPWater by an estimated 49,450 kWh per year.

The following shows electricity usage and potential savings under this program:

- Based on FY20 numbers, EPWater used 208,222,362 kWh in the course of the year for all water utility operations. Of that, the water division used 128,176,559 kWh. This does not include wastewater, stormwater, main office, warehouse, or fleet maintenance operations.
- Average daily water demand for FY20 was 103.7 MGD. Broken down to an hourly basis, that comes out to 4.32 million gallons per hour.

Here are calculations that helped the utility define energy savings of this project:

1) Converting total annual kWh to kWh/hour

$$\frac{\frac{128{,}176{,}559\ \text{kWh}}{\text{yr}}}{\frac{1\ \text{yr}}{8{,}760\ \text{hr (in a year)}}} = 14{,}632\ \text{kWh}$$

2) Determining correlation of kWh/hour to MG/hour.

$$\frac{\frac{14{,}632 \text{ kWh}}{\text{hr}}}{\frac{1 \text{ hr}}{4.32 \text{ MG}}}$$

= 3,387 kWh/MG = 3,387 kWh of energy was used per million gallons of water demand fulfilled

To cross check these numbers against national benchmarks to see if they are within the expected range, utility staff looked to *A Survey of Energy Use in Water Companies*, published in 2015 by the American Council for an Energy Efficient Economy. Below is a table from the report that shows the expected range of kWh per million gallons of water produced.

Table: Energy intensity of water processes (kWh/million gallons)
Source: American Council for an Energy Efficiency Economy

Water service	Mean	Minimum	Maximum
Water source and conveyance	1100	200	1800
Treatment	1100	300	2700
Distribution	700	-	1500
Total	**2300**	**1500**	**3500**

While the EPWater calculated energy intensity of water of 3387 kWh per million gallons of water produced is at the high end of the range – likely due to groundwater production and desalination – it is still within the expected range.

The expected water savings from the project is 1,285 AFY or 418 MGY, which translates into 1.14 MGD or .04 million gallons per hour. By multiplying 3,387 kWh/mg x .04 million gallons per hour, it comes out to 135.48 kWh/day savings. If that is multiplied by 365 days per year, then the annual estimated electricity savings is 49,450 kWh/year.

Fuel Energy/Carbon Footprint Savings

EPWater estimates that for 60,000 AMI meters installed, the utility will be able to remove six vehicles (trucks) from reading conventional meters. A vehicle reading meters in El Paso generates 11,556 vehicle miles traveled and consumes an estimated 514 gallons of fuel annually. Per the U.S. Environmental Protection Agency (EPA), for every truck removed from the road, 4.60 metric tons of greenhouse gas emissions will be reduced. **In total, removal of 6 trucks as part of the AMI smart meter replacement project will help El Paso reduce 27.60 metric tons of carbon per year.**

How will the energy efficiency improvement combat/offset the impacts of climate change, including an expected reduction in greenhouse gas emissions.

The project will remove six vehicles from meter reading, resulting in carbon emission reductions of 27.6 metric tons of carbon. These greenhouse gas cuts will help El Paso mitigate the impacts of climate change. Already, the region is experiencing extreme heat

and river water shortages. Future drought and drought-of-record conditions will place significant strains on El Paso's water supply. The water demand of EPWater is also expected to increase over the next several decades due to rising population. Tackling climate change is imperative to help EPWater from unsustainably pumping the freshwater portions of the Hueco Bolson aquifer to meet water demands.

If the project will result in reduced pumping, please describe the current pumping requirements and the types of pumps (e.g., size) currently being used. How would the proposed project impact the current pumping requirements and energy usage?

El Paso produces water from groundwater, surface water (Rio Grande), and from desalination of brackish groundwater. El Paso has unusual terrain with the Franklin Mountains bisecting El Paso, and the city stretches from the foothills to the valley and also stretches 30 miles from east to west. While EPWater has many pumps in its system, the majority for both production and distribution are centrifugal vertical turbine pumps. Typical size range is 100 to 350 hp.

The water efficiency benefits of the project will reduce EPWater pumping by 1,285 AFY. Less water use will decrease energy demand to produce and distribute water by an estimated 49,450 kWh annually. This number was calculated with the assumption that 80 percent of the energy cost is pumping, and all water savings would result from decreased pumping. Reduced production and energy use of pumps could translate into reduced maintenance as well.

As additional background, the utility serves a customer base of approximately 820,000 through customer connections and wholesale water services. EPWater's current total available water supply is 131,000 AFY. Surface water and groundwater provide the vast majority of the water supply. Surface water is supplied from the Rio Grande. The Rio Grande flows are primarily derived from snowmelt runoff in southern Colorado and northern New Mexico and then held in Elephant Butte reservoir in southern New Mexico for irrigation season at which time farmers and the City of El Paso receive allocations based on availability in accordance with various water supply agreements. The utility processes up to 60,000 AFY of surface water annually, but a typical year is closer to 40,000 AFY. Groundwater supplies are pumped from the Mesilla and Hueco Bolson aquifers and account for approximately 40 percent of annual demand in a typical year. In recent drought years, that number has been closer to 20,000 AFY.

Please indicate whether your energy savings estimate originates from the point of diversion, or whether the estimate is based upon an alternate site of origin.

Energy savings originates from the point of diversion and includes the full cost of producing, treating and distributing water.

Does the calculation include any energy required to treat the water, if applicable?

Energy reduction calculations were based only on pumping for production and distribution.

Will the project result in reduced vehicle miles driven, in turn reducing greenhouse gas emissions? Please provide supporting details and calculations.

For every 60,000 AMI meters installed, EPWater will be able to remove six vehicles from reading conventional meters. A vehicle reading meters in El Paso generates 11,556 vehicle miles traveled and consumes approximately 514 gallons of fuel annually. The EPA estimates that for every truck removed from the road, 4.60 metric tons of greenhouse gas emissions are reduced. In total, smart meter replacement will help El Paso curb 27.6 metric tons of carbon every year.

Describe any renewable energy components that will result in minimal energy savings/production (e.g., installing small-scale solar as part of a SCADA system).

Not applicable.

E.1.3. Evaluation Criterion C—Sustainability Benefits (20 points)

Enhancing drought resiliency.

Does the project seek to improve ecological resiliency to climate change?

Once one of the greatest rivers in North America, the Rio Grande's longstanding reduced flows have diminished its ecological health. In 2021 and 2022, El Paso only received (and is receiving) about 20 percent of its normal allocation from the Rio Grande Project. The stretch of the river is a dray wash most of the year. As such, the project area is not teeming with fish or wildlife. Nonetheless, conversion to smart meters will help to reduce water demand by 1,285 AFY of water.

The U.S. Fish & Wildlife Service has identified El Paso County as home to eight currently federally listed threatened and endangered species. Half of these species have been extirpated from the area. Efforts to reduce Rio Grande withdrawals and protect freshwater sections of the Hueco Bolson from brackish water intrusion will provide benefits to these species. Specifically, improved freshwater supplies will enhance habitat for the endangered Northern Aplomado Falcon, Interior Least Tern, and Southwestern Willow Flycatcher, as well as the threatened Mexican Spotted Owl.

Will water remain in the system for longer periods of time? If so, provide details on current/future durations and any expected resulting benefits (e.g., maintaining water temperatures or water levels).

Under the U.S. Bureau of Reclamation's Rio Grande Project, EPWater has a total potential surface water supply of up to 60,000 AFY of river water rights with typical year allocations closer to 40,000 acre-feet of surface water, which arrives during the irrigation season when water is released from Elephant Butte Reservoir (March to October). In drought years –

which have occurred in seven of the last ten years, EPWater has been limited to less than half of its water supply from the Rio Grande Project. This year the allocation is around 20 percent. Water availability from the Rio Grande Project is greatly impacted by drought since it is a run-of-the-stream supply based upon annual snowmelt in the upper watershed. Native water flows are stored in, and released from, upstream reservoirs to meet the needs of many competing parties that are reliant on the Rio Grande. With water conservation efforts spurred by smart meters and online tools, El Paso could use less Rio Grande Project water, which will remain in the system for a longer period. Resulting benefits include water supply reliability and less pumping of groundwater.

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 or is subject to a recovery plan or conservation plan under the Endangered Species Act (ESA).

The proposed project reduces freshwater pumping and therefore protects vulnerable habitat. Affected species include:

Scientific Name	Common Name	Federal Status	Habitat
Anthus spragueii	Sprague's Pipit	Critical	Strongly tied to native upland prairie, can be locally common in coastal grasslands
Canis lupus	Gray Wolf	Listed Endangered	Forests, brushlands, or grasslands
Coccyzus americanus accidentalis	Western Yellow-billed Cuckoo	Threatened	Riparian habitat for nesting
Empidonax traillii extimus	Southwestern Willow Flycatcher	Listed Endangered	Thickets of willow, cottonwood, mesquite, and other species along desert streams
Escobaria sneedii var sneedii	Sneed's Pincushion Cactus	Listed Endangered	Xeric limestone outcrops on rocky, usually steep slopes in desert mountains, in the Chihuahuan Desert succulent shrublands or grasslands
Falco femoralis septentrionalis	Northern Aplomado Falcon	Listed Endangered	Open country, especially savanna and open woodland, and sometimes in very barren areas; grassy plains and valleys with scattered mesquite, yucca, and cactus
Falco peregrinus	Peregrine Falcon	Delisted	Winters along coast and farther south

Falco peregrinus anatum	American Peregrine Falcon	Delisted	Resident breeder in west Texas
Falco peregrinus tundrius	Arctic Peregrine Falcon	Delisted	Wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands
Hybognathus amarus (extirpated in El Paso County)	Rio Grande Silvery Minnow	Listed Endangered	Historically Rio Grande and Pecos River systems and canals; pools and backwaters of medium to large streams with low or moderate gradient in mud, sand, or gravel bottom
Mustela nigripes	Black-footed Ferret	Listed Endangered	Inhabited prairie dog towns in the general area
Sterna antillarum athalassos	Interior Least Tern	Listed Endangered	Nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc.)
Strix occidentalis lucida	Mexican Spotted Own	Listed Threatened	Remote, shaded canyons of coniferous mountain woodlands (pine and fir)

No other Bureau of Reclamation projects impact the identified species.

Please describe any other ecosystem benefits as a direct result of the project.

The project will help El Paso become more drought resilient. During years when Rio Grande water supply has been limited, EPWater has increased its reliance on groundwater supplies. That increased reliance on groundwater due to drought threatens to destabilize the Hueco Bolson aquifer. Brackish water intrusion into currently freshwater sections of the Hueco Bolson is also an ongoing risk. Reducing water demand with smart meters and online tools will help to protect the Hueco Bolson aquifer.

Will the project directly result in more efficient management of the water supply? For example, will the project provide greater flexibility to water managers, resulting in a more efficient use of water supplies?

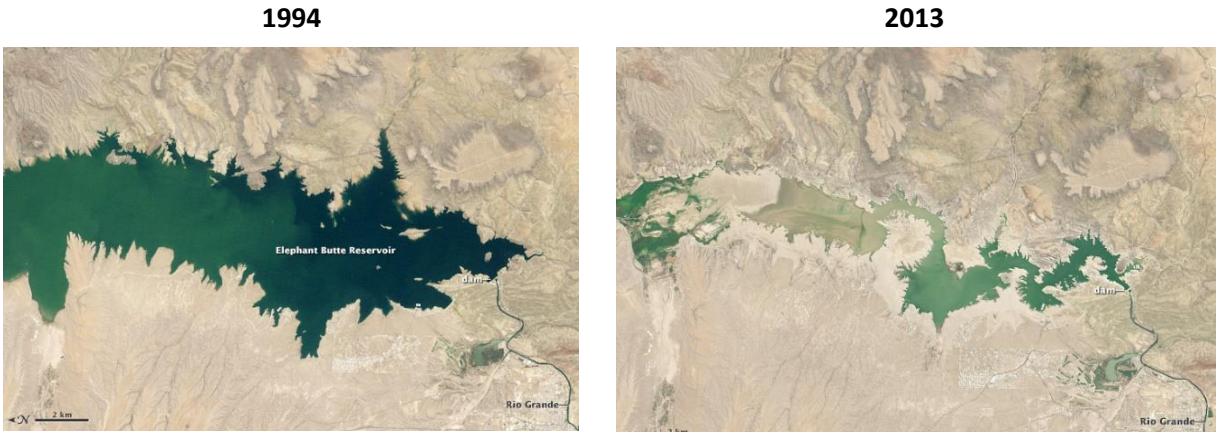
The wide range of data collection, controls, and analytics capabilities will allow EPWater to utilize its AMI system to reduce water loss through improved, real-time leak detection on customer private property; reduce operating costs (electricity efficiency, 6 vehicles off the road); and utilize high-frequency data for various strategic management efforts. With full implementation of the 200,000 AMI meters, the operational benefits will be more apparent and may be sufficient to give greater flexibility to water managers as they balance use of wells and river water.

Efficient use of water supplies is critical in arid, Far West Texas. EPWater holds up to 60,000 AFY of river water rights from the Rio Grande Project. However, drought conditions have limited that supply, and the increasing severity of drought cycles is likely to result in little or no river allocation in some future years. Expansion of water conservation efforts will enable El Paso – and other users who receive water as part of the Rio Grande Project – to be more resilient and tolerate reduced water allocations from the Rio Grande.

Addressing a specific water and/or energy sustainability concern(s).

Explain and provide detail of the specific issue(s) in the area that is impacting water sustainability, such as shortages due to drought and/or climate change, increased demand, or reduced deliveries.

EPWater serves El Paso County, an area that has experienced multiple cyclical episodes of severe and extreme drought within the last 10 years. El Paso is perennially under drought or near-drought conditions compared with other areas of Texas. Average rainfall is less than 10 inches annually. The most recent significant droughts have occurred in 2013 and 2021. In 2013, the Elephant Butte Reservoir (the primary source of EPWater's Rio Grande Project surface water) dwindled to its lowest level in 40 years, and El Paso only received 6 weeks of river water. By late July 2013, the reservoir was still virtually empty. On July 24, 2013, the U.S. Army Corps of Engineers estimated the total water in storage at the Elephant Butte Reservoir to be 65,057 acre-feet, about 3 percent of its total capacity of 2.2 million acre-feet. Last year was only slightly better, and 2022 is shaping up to be very similar.

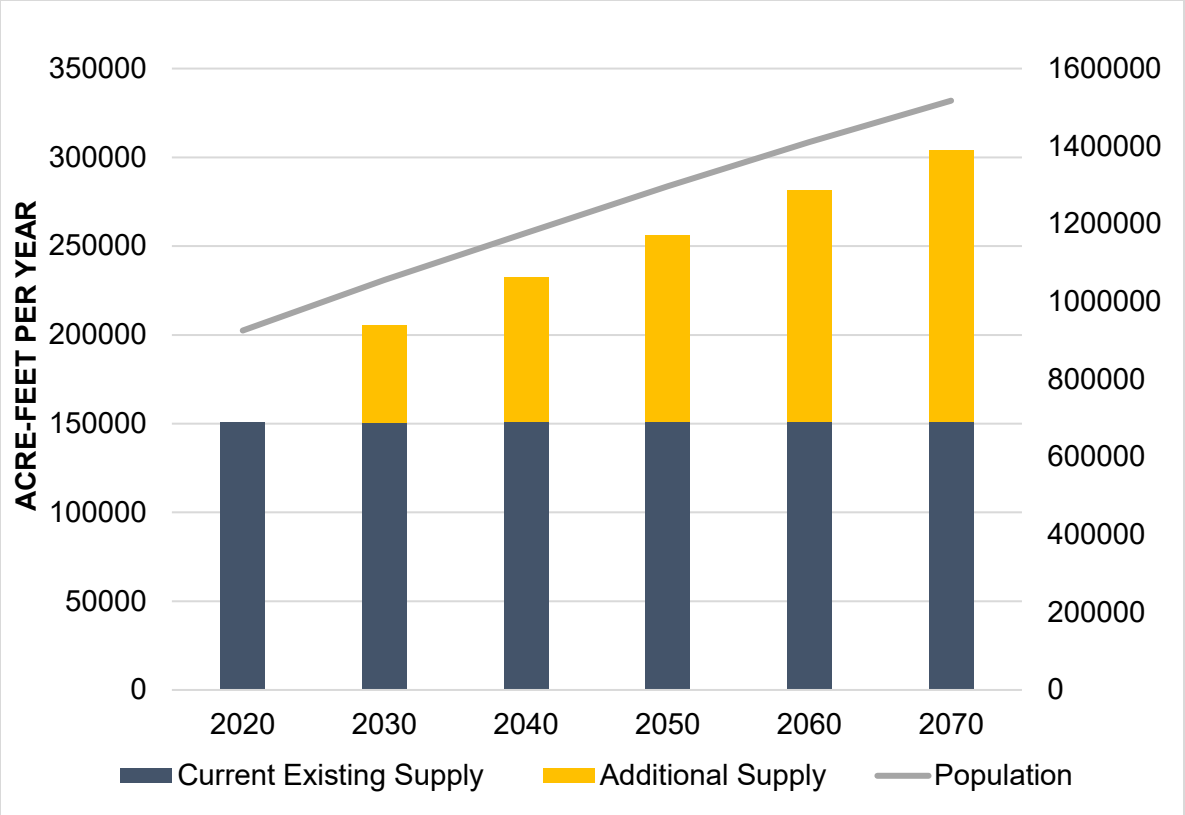


Rio Grande Drought Conditions - 1994 vs. 2013 (Drought of Record)

Since 2013, the United States Drought Monitor registered El Paso and the Rio Grande watershed in perpetual states of drought intensity. In 2014, the region alternated between moderate, severe, and extreme drought conditions. Between the years 2015-2017, the area has fluctuated from abnormally dry to moderate drought. In late 2013, 2014, and again in 2015, Texas Governor Rick Perry declared El Paso County a drought disaster area, proclaiming that "drought conditions have reached historic levels and continue to pose an imminent threat to public health, property, and the economy."

Drought cycles threaten to negatively impact a region experiencing population growth. By 2070, El Paso County's population is expected to grow to 1.4 million people. The region's future water security will depend on EPWater expanding water, wastewater, and stormwater infrastructure systems. To mitigate the effects of these droughts, EPWater is diversifying its water portfolio and implementing wide-ranging water conservation measures.

Located in the Chihuahuan Desert, the arid climate of El Paso, Texas, is a stressor on energy systems. These challenges stand to worsen as climate change presents more extreme weather patterns. El Paso acknowledges these risks and has worked towards creative solutions to support the future prosperity of the city. In 2016, El Paso Electric became the first utility in Texas and New Mexico to completely eliminate coal generation from its portfolio, and in April 2017 El Paso achieved Gold SolSmart designation, continuing since to serve as an example for energy efficiency across the state.



Explain and provide detail of the specific issue(s) in the area that is impacting energy sustainability, such as reliance on fossil fuels, pollution, or interruptions in service.

In addition to community-based sustainability initiatives, El Paso is unique from many other Texas communities since El Paso Electric is part of the Western Interconnection power grid; the majority of Texans receive their power from the Texas Interconnection grid managed by ERCOT. This protected El Paso from the extended power outages and rolling blackouts that affected millions of people in February 2021. Most recently, El Paso Electric completed a renewable generation study, a first analysis on how to achieve decarbonization of their portfolio.

El Paso Electric and EPWater have engaged in conversations about placing solar photovoltaics on water properties, particularly around water utility plants. An assessment is underway to identify best land options for a solar farm. While not part of this project, solar energy on EPWater lands surrounding water and wastewater plants will add to utility resilience and sustainability overall.

Please describe how the project will directly address the concern(s) stated above. For example, if experiencing shortages due to drought or climate change, how will the project directly address and confront the shortages?

Smart meters are part of a comprehensive strategy to tackle the challenge of drought, water supply and climate change in the El Paso region. The proposed project will help EPWater avoid lost water with the detection of leaks and burst pipes and to engage customers in water saving behaviors. The utility expects to reduce water demand by 1,285 AFY with conversion to smart meters. This approach aligns with EPWater's other plans for advanced water purification, expanded Hueco Bolson aquifer recharge, and water importation.

Please address where any conserved water as a result of the project 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.

While future drought conditions may limit the amount of water available in the system, any conserved resources will help EPWater to avoid groundwater pumping. The unreliability of Rio Grande water supply has required an increased reliance on groundwater supplies in El Paso. EPWater relies on two separate aquifers for groundwater supply, the Hueco Bolson and the Mesilla Bolson. As fresh groundwater withdrawals increase, the Hueco Bolson aquifer, in particular, could become depleted and at risk for brackish water intrusion. Groundwater depletion is a threat to the Hueco Bolson if there is over-pumping either due to drought or to meet growing water demands. The Hueco Bolson experienced serious declines in the 1980s and 1990s. While the decline has slowed, it is essential to carefully manage this groundwater resource to ensure sustainability.

Water conservation efforts will also help EPWater to delay groundwater importation. Groundwater importation is costly and will have significant environmental impacts.

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

Conserved water will remain in the Rio Grande or Hueco Bolson/Mesilla Bolson aquifers.

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

AMI technology will help EPWater save 1,285 AFY of water and reduce utility water losses.

Other project benefits.

(1) Combating the Climate Crisis:

Please provide specific details and examples on how the project will address the impacts of climate change and help combat the climate crisis.

The "Installing Smart Meters in El Paso, Texas, to Save Water and Energy" project aligns with Executive Order 14008. EPWater's conversion to AMI technology will tackle the climate crisis with tangible water conservation and water use efficiency efforts

in the arid Far West Texas region. This work will save 1,285 AFY of water in an arid region experiencing recurring drought conditions. The full implementation will save 4,440 AFY. The scope of the project will remove six vehicles from meter reading, resulting in carbon emission reductions of 27.6 metric tons annually. The need to extract, treat, and distribute less water will also reduce energy demands on EPWater by 49,450 kWh annually.

Already, the region is experiencing extreme heat and water shortages. According to the Bureau of Reclamation's *Water Reliability in the West – 2021 SECURE Water Act Report*, climate model projections indicate an increase in drought duration and severity across Texas. Greenhouse gas emission reductions and water conservation efforts are imperative to help El Paso mitigate the impacts of climate change.

Does this proposed project strengthen water supply sustainability to increase resilience to climate change?

Water supply shortages are a risk in the region. El Paso is growing, and by 2030, the demands of customers are expected to exceed the area's current supply. EPWater holds up to 60,000 AFY of river water rights from the Rio Grande Project. However, drought conditions have limited that supply, and the increasing severity of drought cycles is likely to result in little or no river allocation in some future years. Smart meters and water conservation efforts will help El Paso to be more resilient and tolerate reduced water allocations from the Rio Grande.

Will the proposed project establish and utilize a renewable energy source?

No – but energy efficiency is part of El Paso Electric's strategy to achieve its commitment to 80 percent carbon-free energy by 2035.

Will the project result in lower greenhouse gas emissions?

EPWater will need six less vehicles to read 60,000 conventional water meters after project implementation. The EPA calculates that for every truck removed from the road, 4.60 metric tons of greenhouse gas emissions will be reduced. Smart meter conversion will help El Paso reduce 27.6 metric tons of carbon annually from reduced vehicle miles traveled. In addition, EPWater will utilize less energy to extract, treat, and distribute water, generating additional carbon savings.

(2) Disadvantaged or Underserved Communities:

Does the proposed project directly serve and/or benefit a disadvantaged or historically underserved community? Benefits can include, but are not limited to, public health and safety through water quality improvements, new water supplies, new renewable energy sources, or economic growth opportunities.

Much of the El Paso region is economically-disadvantaged. Poverty is higher in the service area (18.8 percent in the city of El Paso and 17.6 percent across El Paso County) compared to state (13.4 percent) and national levels (11.4 percent). Median household incomes are also lower in the region ($48,866 in the city of El Paso and $48,292 across El Paso County) in relationship to Texas ($63,826) and the United States ($64,994).

	City of El Paso	El Paso County	Texas	United States
Poverty	18.8%	17.6%	13.4%	11.4%
Median Household Income	$48,866	$48,292	$63,826	$64,994

Source: 2016-2020 American Community Survey, U.S. Census Bureau

A substantial proportion of residents are considered very low-income, with nearly 20 percent of El Pasoans living below the federal poverty line. In EPWater's service area, high concentrations of poverty can be found clustered in the urban core. A large portion of El Paso families earn less than their counterparts across Texas. Median household income in the region is 75 percent of national levels. High levels of poverty also exacerbate other environmental and social challenges within the El Paso community.

Smart meters will help low-income communities to adopt water conservation measures in the homes that can save money. Online tools will enable these families to monitor water use and change behaviors to save water and money.

If the proposed project is providing benefits to a disadvantaged community, provide sufficient information to demonstrate that the community meets the disadvantaged community definition in Section 1015 of the Cooperative Watershed Act, which is defined as a community with an annual median household income that is less than 100 percent of the statewide annual median household income for the State, or the applicable state criteria for determining disadvantaged status.

The project meets the disadvantaged community definition in Section 1015 of the Cooperative Watershed Act, with the area served falling below 100 percent of the statewide annual median household income. Median household income in Texas is $63,826. In EPWater's service territory, the median household income is $48,866 in El Paso (76.5 percent of Texas median household income) and $48,292 in El Paso County (75.6 percent of Texas median household income).

If the proposed project is providing benefits to an underserved community, provide sufficient information to demonstrate that the community meets the underserved definition in E.O. 13985, which includes populations sharing a particular characteristic, as well as geographic communities, that have been systematically denied a full opportunity to participate in aspects of economic, social, and civic life.

The region meets the definition of an underserved area as defined by Executive Order 13985. El Paso and El Paso County are majority-minority communities. El Paso is 87.4

percent minority, with 81.5 percent Hispanic representation. In El Paso County, minorities total 88.6 percent of the population, with 82.9 percent Hispanic representation. Income inequality in EPWater's service territory among Hispanic residents is prevalent. Per capita income for Hispanic residents is $19,623 in El Paso and $18,845 in El Paso County, compared to a statewide per capita income of $32,177 and a national per capita income of $33,740.

	City of El Paso	El Paso County	Texas	United States
Per Capita Income	$19,623* (Hispanic) $23,450 (all)	$18,845* (Hispanic) $22,490 (all)	$32,177 (all)	$33,740 (all)

Source: 2016-2020 American Community Survey, U.S. Census Bureau
*Source: 2015-2019 American Community Survey, US. Census Bureau (2016-2020 data not available)

(3) Tribal Benefits:

Does the proposed project directly serve and/or benefit a Tribe? Will the project increase water supply sustainability for an Indian Tribe? Will the project provide renewable energy for an Indian Tribe?

The project supports the President's "Tribal Consultation and Strengthening Nation-to-Nation Relationships" memorandum, asserting the importance of honoring the Federal government's commitments to Tribal Nations. Located in the Lower Valley area of the city and county of El Paso is the home of the Tigua tribe. The Ysleta Del Sur Pueblo is a U.S. federally recognized Native American tribe and sovereign nation. The Tribal community known as the "Tigua" established Ysleta Del Sur in 1682. The population of the Pueblo is 3,462 citizens and descendants. Water access and irrigation rights were first guaranteed to the Tiguas in 1642, when Spain gave the Tiguas irrigation rights and made these rights inviolate. Today, the Pueblo residents are EPWater customers. EPWater shares the U.S. Bureau of Reclamation's commitment to uphold the Tigua's water rights. The project's water supply benefits will ensure the protection of the Tigua's claims.

Does the proposed project directly support tribal resilience to climate change and drought impacts or provide other tribal benefits such as improved public health and safety through water quality improvements, new water supplies, or economic growth opportunities?

Smart meters help to mitigate the impacts of climate change across the region. AMI technology is part of a comprehensive strategy to tackle the challenge of drought and water shortages in El Paso. The proposed project will help EPWater avoid lost water with the detection of leaks and burst pipes. Online tools will enable customers to adopt

conservation measures that will also save water. The utility expects to reduce water demand by 1,285 AFY with conversion to smart meters. This approach supports tribal resilience and protect the Tigua's claims to water from the Rio Grande.

(4) Other Benefits:

Will the project assist States and water users in complying with interstate compacts?

The proposed project helps the U.S. Bureau of Reclamation fulfill the water distribution requirements and treaty obligations of the Rio Grande Project authorized in 1905. This project furnishes a full irrigation water supply for about 178,000 acres of land in the states of New Mexico and Texas. Use of Rio Grande Project water is governed by the Rio Grande Compact. Water is also allotted to Mexico by the International Boundary and Water Commission to irrigate approximately 25,000 acres in the Juarez Valley. Water saved through smart meters and online tools will be available to meet the needs of both the United States and Mexico.

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

Conserving water will provide benefits to agricultural, commercial, industrial, and residential users. Smart meters and conservation efforts will help to ensure that water is available during droughts and water shortages. Importantly, the project will also benefit Fort Bliss, one of the largest military bases in the country. EPWater provides 25 percent of the needed water supply to Fort Bliss and treats 100 percent of the military base's wastewater needs. Fort Bliss relies on freshwater wells for 75 percent of its water supply and grapples with saltwater intrusion of some of its wells. Water resiliency at Fort Bliss is necessary to protect America's national security interests, and EPWater and Fort Bliss have entered into an Intergovernmental Support Agreement (IGSA) that would enable the utility to help Fort Bliss with water and wastewater resiliency projects. Reliable water supply is essential to Fort Bliss' national security mission. The AMI smart meter project will conserve water and add flexibility to resiliency options in support of Fort Bliss' national security mission.

Will the project benefit a larger initiative to address sustainability?

El Paso's Congresswoman Veronica Escobar has led a community effort to develop a Climate Action Framework that will be finalized later this year. One of the objectives is to reduce water consumption to 115 GPCD by 2030, a significant reduction from EPWater's current 135 GPCD. AMI smart meters are one of a group of strategies to help the utility to achieve this objective.

Additionally, at the state level, the Texas Water Development Board has established sixteen regions of the state and required each region to develop a 50-Year Water Plan. Stretching from the City of El Paso at the Texas-New Mexico state line over salt flats and southeastward toward the sparsely populated mountainous Big Bend country and

the Pecos River, the Far West Texas Planning Area (Region E) includes seven counties within the Rio Grande Basin (Brewster, Culberson, El Paso, Hudspeth, Jeff Davis, Presidio, and Terrell). About 96 percent of the region's residents reside in El Paso County, where the population density is 760 persons per square mile.

In 2021, the fifth round of regional water planning concluded with the latest update of the *Far West Texas Water Plan*.[2] Every five years, the plan is updated. The purpose of the *Far West Texas Water Plan* is to provide a document that water planners and users can reference for long- and short-term water management recommendations. The plan provides an evaluation of current and future water demands for all water-use categories, and water supplies available during drought-of-record conditions to meet those demands. Where future water demands exceed an entity's ability to supply that need, alternative strategies are considered to meet the potential water shortages.

Smart metering was identified as a recommended conservation project to address the region's future water supply needs. AMI technology is part of EPWater's larger effort to ensure a sustainable, resilient water supply for the El Paso region. Smart meters and conservation go hand in hand with other water supply strategies, which include advanced water purification, expanded Hueco Bolson aquifer recharge, and water importation.

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

Texas and New Mexico have been engaged in litigation for years over Rio Grande water issues, and at this writing, a settlement in principle has been reached. While the terms of the settlement are not public, conservation strategies to reduce reliance on the Rio Grande could well be a requirement on both sides to ensure fairness in water allocations as the river serves (or is unable to serve) the needs of New Mexico, Texas and also Mexico, consistent with Treaty obligations. AMI is a conservation strategy that has been documented to achieve water savings and could help deliver on treaty and interstate obligations.

E.1.5. Evaluation Criterion E—Planning and Implementation (8 points)

E.1.5.1. Subcriterion E.1— Project Planning

Does the applicant have a Water Conservation Plan and/or System Optimization Review (SOR) in place? Does the project address an adaptation strategy identified in a completed WaterSMART Basin Study?

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.

[2] http://westtexaswaterplanning.org/wp-content/uploads/2020/11/2021-Far-West-Texas-Water-Plan.pdf

EPWater updated its *Water Conservation Plan in 2019.*[3] This plan was adopted to achieve reductions of water consumed for residential and commercial purposes through implementation of efficient water use practices; protect the integrity of water supply facilities, with particular regard for domestic water use, sanitation and fire protection; preserve public health, welfare, and safety; and minimize the adverse impacts of water supply shortages or other water supply emergency conditions. The *Water Conservation Plan* highlights EPWater's AMI pilot program to investigate cost-benefit and conservation impacts of smart meters. As the plan states, "AMI has the potential to change the way water consumption is measured. Many cities have begun to test these meters through pilot programs to determine if they should be part of the meter replacement program. Although such systems may have high capital costs, advantages include the ability to read meters remotely, which has the potential to reduce staff cost and provide real-time meter readings to identify leaks or other anomalies in water use. Currently, if such anomalies are observed by a meter reader, EPWater alerts customers manually with a notice on the door indicating detection of unusually high consumption."

Upon review of the pilot results (16,000 meters), which showed improvements to safety, accuracy and water savings, the utility proceeded in 2022 with a full multi-phase replacement program.

By 2070, the *Far West Texas Water Plan* projects an El Paso County population of approximately 1.4 million residents, an increase of 75 percent.[4] To meet the 2070 projections, investing in conservation strategies is critical to provide El Paso with a drought-proof, sustainable supply of water. The *Far West Texas Water Plan* identifies smart meters and AMI technology as a useful tool in conserving water supply. As the report states: "Over the last few years, smart meters and advanced metering infrastructure (AMI) have become quite popular. AMI meters allow real-time monitoring of water usage. The AMI systems can help pinpoint water loss and allows for more interactive and responsive water management by the water provider."

The 2021 *Rio Grande Regional Water Plan* prepared by the Rio Grande Regional Water Planning Group also recommends AMI technologies to conserve water in the region.[5] In multiple communities, older meters are being replaced with smart meters that can detect leaks and promote household water conservation efforts.

The project also supports the findings of the *Lower Rio Grande Basin Study*, developed by the Bureau of Reclamation in collaboration with the Rio Grande Regional Water Authority in December 2013.[6] The study projected severe water supply and demand imbalances through 2060, leading to a likely decrease in water delivery reliability. To address these

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[3] https://p1cdn4static.civiclive.com/UserFiles/Servers/Server_6843404/File/Conservation/Water%20Conservation%20Plan%202019.pdf

[4] http://westtexaswaterplanning.org/wp-content/uploads/2020/11/2021-Far-West-Texas-Water-Plan.pdf

[5] http://www.lrgvdc.org/downloads/regionm/2021_Region%20M%20RWP_Final_2020-10-1.pdf

[6] https://www.usbr.gov/watersmart/bsp/docs/finalreport/LowerRioGrande/LowerRioGrandeBasinStudy.pdf

projected imbalances, the study developed strategies to reduce dependence on the Rio Grande that cover the projected shortfall, protect existing water rights, are compatible with relevant laws and regulations, and are implementable by the study sponsors. Smart metering aligns with the water conservation strategies of the *Lower Rio Grande Basin Study.*

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).

El Paso adopted a Conservation Ordinance in 1991 and implemented a series of conservation programs that have brought down consumption from 205 gallons per consumer per day (gpcd) to 135 gpcd today. In EPWater's 2019 *Water Conservation Plan*, EPWater sets goals to reduce consumption to 126.5 gpcd within five years and to 125 gpcd by 2030, which is in line with the 2021 *Far West Texas Plan*.

EPWater's 2019 *Water Conservation Plan* will achieve significant conservation savings to help extend the life of existing supplies without burdening the customer with unnecessary additional costs. Among these strategies is the full adoption of smart meters across the utility's service territory. Full AMI implementation will help EPWater to reduce service line and in-home leaks and improve meter accuracy. These efforts will support EPWater's goal to achieve 125 gpcd by 2030 and 118 gpcd by 2060.

If applicable, provide a detailed description of how a project is addressing an adaptation strategy specifically identified in a completed WaterSMART Basin Study or Water Management Options Pilot (e.g., a strategy to mitigate the impacts of water shortages resulting from climate change, drought, increased demands, or other causes)

The *Rio Grande Basin Study* is currently underway and is a three-year federally funded program to develop a science-based projection of possible future water situations in the middle Rio Grande (Colorado state line to Elephant Butte). While El Paso is directly impacted by the strategies that will come out of the Plan since the city's municipal supply depends upon water storage in Elephant Butte. Successful conservation strategies can increase water resilience when Elephant Butte water storage and Rio Grande Project allocations are below normal.

Additionally, El Paso Water has a 50-Year Plan that has been integrated with the Far West Texas (Region E) regional water plan, and the AMI smart meter project is mentioned as a regional strategy for conservation. It will contribute to conservation targets that are important to the region's water sustainability. Smart water meter replacement is identified as a critical strategy for communities across the region, resulting in leak detection, system efficiency improvements, and household water conservation efforts.

E.1.5.2. Subcriterion E.2— Readiness to Proceed

Identify and provide a summary description of the major tasks necessary to complete the project.

In 2022, EPWater completed the training of utility personnel on AMI hardware and software systems and began the first year of what will be an 8-10-year full replacement implementation program. Between the pilot (16,000 meters) and the first phase (20,000 meters), a total of 36,000 smart meters will have been installed before this project starts. By completing the pilot and first phase, EPWater will have the momentum and readiness to proceed with this project scope of an additional 60,000 meters over three years.

In anticipation of this grant application, the utility has already identified priority neighborhoods and households with a focus on: homes with older meter equipment and older pipes that are more prone to leaks, and locations that pose a safety threat to meter readers.

Major project tasks include:

- Installation of 60,000 IP68-rated smart meters with integrated radio and acoustic leak detection capabilities with connections to data collectors.
- Integration of AMI infrastructure with the utility's billing, meter data, and SCADA systems, and tool enabling the customer service team to monitor water use and sent alerts and notifications to customers if a potential leak is observed.
- Development and launch of cloud-based analytic portal for customers to track consumption via the web, Android and iOS apps. It will be fully integrated with the analytics engine and notification module.

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

No construction or building permits will be necessary to conduct the project. Smart meters will require a Federal Communications Commission (FCC) license modification. EPWater obtained a license in 2019, and it applies to the entire city with unlimited collector points. The license must be renewed every 10 years at a cost of $250 paid to the FCC.

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

Metering, customer service, billing, engineering and information technology all play an important role in implementing an AMI system. Integration design was required when EPWater conducted its pilot program, installing 16,000 smart meters at local households, and based on positive benefits, the utility made the decision to proceed with a full replacement program of the remaining 200,000 meters in the system. The utility began rollout of 20,000 AMI meters this year (2022) and plans to install 20,000 each year over 10 years until all traditional meters are replaced. The design and IT engineering needs required for the pilot and first phase will be applied for subsequent phases.

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

No new policies or administrative actions are required to launch the project.

Please also include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.

Project Timeframe: 36 Months

2022		
December 2022	Purchase 5,000 meters	
2023		
February 2023	Begin installation of meters	
May 2023	Continue meter installation; Purchase an additional 5,000 meters	
August 2023	Continue meter installation; Purchase an additional 5000 meters	
November 2023	Continue meter installation; Purchase an additional 5000 meters	
2024		
February 2024	Continue meter installation; Purchase an additional 5000 meters	
May 2024	Continue meter installation; Purchase an additional 5000 meters	**Project 50% complete**
August 2024	Continue meter installation; Purchase an additional 5000 meters	
November 2024	Continue meter installation; Purchase an additional 5000 meters	
2025		
February 2025	Continue meter installation; Purchase an additional 5000 meters	
March 2025	Purchase H2O Analytics portal and begin implementation and rollout to customers	
May 2025	Continue meter installation; Purchase an additional 5000 meters	
August 2025	Continue meter installation; Purchase an additional 5000 meters	
November 2025	Continue meter installation; Purchase an additional 5000 meters	
December 2025	Complete meter installation; Prepare final report.	**Project 100% complete**

E.1.6. Evaluation Criterion F—Collaboration (6 points)

Is there widespread support for the project? Please provide specific details regarding any support and/or partners involved in the project. What is the extent of their involvement in the process?

Collaboration with El Paso Electric on messaging of rollouts: Conservation and related tools for conservation enjoy broad support across El Paso. With EPWater education programs, children learn about the importance of conservation at a young age, and this has contributed to a culture of conservation in the city. Business and elected leaders have specifically advocated for smart meters and are enthusiastic that both the electric company and water utility have started to implement AMI systems in 2022. El Paso Electric and EPWater plan have begun to coordinate on messaging as both roll out smart meter initiatives.

Customer engagement: With the introduction of the customer portal in the third year of the program, collaboration and engagement with customers will be an essential part of the project. Significant outreach and communication will occur through direct mail, social media and neighborhood meetings with customers who have had new smart meters installed.
When implemented:

- Customers will be able to review hourly, daily and monthly usage information on a range of devices.
- Customers will control notification for leaks and high use conditions and customers can manage their notifications across multiple devices.
- Notifications can be set to be delivered via email, text message and computerized voice calls.

According to a case study from an American Water Works Association publication "Increasing consumer benefits & engagement in AMI-based conservation programs," high usage customers who registered for portals reduced their consumption by 5.5 percent compared to high usage customers who did not sign up. While EPWater has not included this savings in its water efficiency calculations because the rollout is in year three and it's not yet clear how many will sign up, the customer engagement as a result of this project promises benefits that will go well beyond the timeline of the project.

Business collaboration: EPWater in 2022 launched a commercial conservation rebate program and is working to expand its water audits in the industrial, commercial and institutional (ICI)

sector. The smart meter project will provide an additional tool to offer the ICI sector to improve water efficiency.

Non-profit partnership to help low-income customers: El Paso Water has developed a program called AguaCares in collaboration with the nonprofit Project Amistad (Amistad). Amistad has a mission to serve the elderly, persons with disabilities and persons-at-risk. Through the AguaCares programs, Amistad provides utility assistance for low-income seniors and also helps EPWater with distribution of low-flow shower fixtures and faucets. EPWater and Amistad have found that through conservation, low-income utility customers can better manage utility bills. EPWater will collaborate with Amistad to help with rollout of the portal to low-income customers who have access to needed devices. The customer portal has the potential to be one more tool for those who are economically disadvantaged to control their water bills.

Fort Bliss collaboration: El Paso Water and Fort Bliss have developed an Intergovernmental Support Agreement to improve water, wastewater and stormwater resiliency on the military base. Fort Bliss has expressed interest in EPWater's efforts to deploy smart meters, and the outcome of early phases of implementation will help inform the military base decisions about implementing their own smart meter program on base. These important water conservation measures will help Fort Bliss to be more water resilient, thereby supporting its vital nation security mission.

What is the significance of the collaboration/support?

As drought conditions persist in the region, EPWater must engage partners and help them to utilize any and all tools available to conserve water and ensure a long-term sustainable water supply for our region. Smart meters and the new customer portal provide an opportunity for the utility to expand the conversation with partners, including El Paso Electric, Fort Bliss, the business community and our customers. This collaboration and the conversation on the smart meters and customer portal have the potential to lead to other conservation measures that will help both the customer and the utility.

Will this project increase the possibility/likelihood of future water conservation improvements by other water users?

Yes – EPWater will continue to rollout smart meter installations to all homes and businesses in the community. While this project is focused on the 60,000 new AMI smart meters to be installed, the customer portal benefit will apply to all 200,000+ customers.

By sharing EPWater's water and energy efficiency savings outcomes of AMI implementation with Fort Bliss, it will influence their decision around adoption of smart meters, which could improve the water efficiency of the base's military operations as well as the 5000 homes it has on base. Fort Bliss and EPWater rely on the same aquifer, and so it is mutually beneficial to adopt conservation practices that protect the long-term sustainability of this valuable resource.

Please attach any relevant supporting documents (e.g., letters of support or memorandum of understanding).

Please see support letter from Borderplex, representing the regional business community. Also, please see attached agreement with Amistad that specifically mentions promotion and marketing of Conservation Programs.

E.1.7. Evaluation Criterion G— Additional Non-Federal Funding (4 points)

Non-Federal Funding/Total Project Cost:

The total project cost is estimated at $13.98 million. EPWater will provide a non-federal match of $8.98 million to install 60,000 smart meters in the community.

$$\frac{\$\ 8{,}980{,}000}{\$\ 13{,}980{,}000} = 64\%\ \text{Non-Federal Match}$$

EPWater has also planned for future phases of the project with full implementation of 200,000+ AMI smart meters. The investment in current, planned and future phases is included in the EPWater Capital Improvement Program and is expected to be an investment of more than $40 million.

E.1.8. Evaluation Criterion H— Nexus to Reclamation (4 Points)

Does the applicant have a water service, repayment, or O&M contract with Reclamation?

No.

If the applicant is not a Reclamation contractor, does the applicant receive Reclamation water through a Reclamation contractor or by any other contractual means?

Yes. As part of the Rio Grande Project, EPWater has third-party agreements with the El Paso County Water Improvement District #1 and the U.S. Bureau of Reclamation, which allows for the purchase of surface water supply from the Rio Grande. That water is treated at two water treatment plants in El Paso. The Rio Grande makes up about 40 percent of the city's water supply during a typical year. Due to drought, in 2021 and 2022, that allocation was/is closer to 20 percent.

Will the proposed work benefit a Reclamation project area or activity?

Yes. The project will benefit the Rio Grande Project area through conservation and contribute to regional water resilience. Conservation measures and alternate water supplies are essential to serving the needs of the El Paso community, especially during drought cycles when river water flows and Elephant Butte reservoir are at levels that are at or near record lows.

Is the applicant a Tribe?
No.

Performance Measures

Provide a brief summary describing the performance measures that will be used to quantify actual benefits upon completion of the project (e.g., water saved or better managed, energy generated or saved).

WaterSmart funding will enable EPWater to replace 60,000 meters with AMI systems in its service territory. The following performance measures will be employed to measure project success:

- # of replaced, individual meters with AMI smart meter technology
- # of leaks and burst pipes detected with smart meters
- AFY of water conserved from leaks and burst pipes following real-time detection
- AFY of water conserved by households with AMI meters, comparing previous water use to water use following AMI installation
- # of vehicles removed from meter reading fleet
- Amount of fuel conserved from reduced fleet
- Greenhouse gas emission reductions from decreased fuel use
- Conserved electricity from avoided pumping and distribution of water
- # of customers who access and use the portal for tracking household consumption.

Project Budget

Table 1. – Summary of Non-Federal and Federal Funding Sources

FUNDING SOURCES	AMOUNT
Non-Federal Entities	
1.El Paso Water Public Utilities Service Board	$8,890,000
2.	
3.	
Non-Federal Subtotal	$8,890,000
REQUESTED RECLAMATION FUNDING	$5,000,000

Table 2. – Total Project Costs

Year	Description	Unit Cost	Totals	Grant request amount	El Paso Water match
2023	20,000 meters	$222.00	4,440,000	1,598,000	2,842,000
2024	20,000 meters	$231.00 (with 4% inflation)	4,620,000	1,663,000	2,957,000
2025	20,000 meters	$240.00 (with 4% inflation)	4,800,000	1,727,000	3,073,000
2025	Customer portal	License Fee $20,000 Implementation Package $5,000 Annual Support-Year 1 $5,000	30,000	12,000	18,000
			$13,890,000	$5,000,000	8,890,000

Describe how the non-Federal share of project costs will be obtained.

EPWater will provide a $8.89 million match for the project from the Capital Improvement Project budget of the utility. These are strictly expenses and do not capture the costs of time and labor of staff involved in developing and implementing the project.

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)***
- ***Any costs that will be contributed by the applicant***
- ***Any third-party in-kind costs (i.e., goods and services provided by a third party)***
- ***Any cash 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***

EPWater's $8.89 million cash match for the project will be provided through multiple fiscal years, and funding will come from the Capital Improvements Program budget. The project involves no third-party in-kind costs or cash from other non-Federal entities. There are no other pending funding requests for the proposed project.

Pre-Award Costs

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, and how the expenditure benefits the project

No pre-award costs are expected to be incurred. If the award is not made until sometime in 2023, the project schedule will slide back accordingly.

Environmental and Cultural Resources Compliance

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 "Installing Smart Meters in El Paso, Texas, to Detect Water Leaks, Save Energy, and Reduce Greenhouse Gas Emissions" project has been evaluated for environmental and cultural impacts. No impacts are anticipated with replacement of conventional water meters with smart meters. Collector sites to gather wireless information from the installed smart meters will be placed on water towers throughout the system that already house SCADA radio antennae.

The proposed project will remove existing water meters on 20,000 homes across the community and replace this equipment with AMI technologies. As such, no earth-disturbing work will occur. The project will not affect soil, air, water, or habitat. No mitigation activities are necessary to protect the surrounding environment.

For this application, EPWater consulted the local Reclamation office (Woodrow Irving, Planning Engineering with the Bureau of Reclamation in El Paso Texas), and he concurred that this project qualifies for a Categorical Exclusion and will have no environmental, cultural, or historical impacts.

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?

The U.S. Fish & Wildlife Service has identified El Paso County as home to eight currently federally listed threatened and endangered species (see table below). Half of these species have been extirpated from the area. Efforts to reduce Rio Grande withdrawals and protect freshwater sections of the Hueco Bolson from brackish water intrusion will provide some benefits to these species. Specifically, improved fresh water supplies will enhance habitat for the endangered Northern Aplomado Falcon, Interior Least Tern, and Southwestern Willow Flycatcher, as well as the threatened Mexican Spotted Owl.

Threatened and Endangered Species

Scientific Name	Common Name	Federal Status	Habitat
Anthus spragueii	Sprague's Pipit	Critical	Strongly tied to native upland prairie, can be locally common in coastal grasslands
Canis lupus	Gray Wolf	Listed Endangered	Forests, brushlands, or grasslands
Coccyzus americanus accidentalis	Western Yellow-billed Cuckoo	Threatened	Riparian habitat for nesting

Empidonax traillii extimus	Southwestern Willow Flycatcher	Listed Endangered	Thickets of willow, cottonwood, mesquite, and other species along desert streams
Escobaria sneedii var sneedii	Sneed's Pincushion Cactus	Listed Endangered	Xeric limestone outcrops on rocky, usually steep slopes in desert mountains, in the Chihuahuan Desert succulent shrublands or grasslands
Falco femoralis septentrionalis	Northern Aplomado Falcon	Listed Endangered	Open country, especially savanna and open woodland, and sometimes in very barren areas; grassy plains and valleys with scattered mesquite, yucca, and cactus
Falco peregrinus	Peregrine Falcon	Delisted	Winters along coast and farther south
Falco peregrinus anatum	American Peregrine Falcon	Delisted	Resident breeder in west Texas
Falco peregrinus tundrius	Arctic Peregrine Falcon	Delisted	Wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands
Hybognathus amarus (extirpated in El Paso County)	Rio Grande Silvery Minnow	Listed Endangered	Historically Rio Grande and Pecos River systems and canals; pools and backwaters of medium to large streams with low or moderate gradient in mud, sand, or gravel bottom
Mustela nigripes	Black-footed Ferret	Listed Endangered	Inhabited prairie dog towns in the general area
Sterna antillarum athalassos	Interior Least Tern	Listed Endangered	Nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc.)
Strix occidentalis lucida	Mexican Spotted Owl	Listed Threatened	Remote, shaded canyons of coniferous mountain woodlands (pine and fir)

The project will have no adverse environmental impacts. The proposed project reduces freshwater pumping and therefore protects vulnerable habitat.

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.

Not applicable. No wetlands are within the project area.

When was the water delivery system constructed?

EPWater's first treatment plant to take water from the Rio Grande opened in the 1940s, but some of the distribution system predates the plant. EPWater has an asset management system to maintain and replace aging equipment to optimize operations.

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.

Not applicable. The project will not modify or effect irrigation systems.

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.

El Paso County Water Improvement District No. 1 is a political subdivision of the State of Texas, which delivers surface water from the Rio Grande in El Paso County, Texas, to water right lands in El Paso County. There are 104 structures with the 48,340-acre district. No buildings, structures, or features in the irrigation district will be impacted by the project.

For this application, EPWater consulted the local Reclamation office (Woodrow Irving, Planning Engineering with the Bureau of Reclamation in El Paso Texas), and he concurred that this project qualifies for a Categorical Exclusion and will have no environmental, cultural or historical impacts.

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

Not applicable. All meter replacements and collector systems will be on previously disturbed areas with existing infrastructure.

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

The project will have no adverse impacts on low-income or minority populations. In fact, the project will benefit these distressed populations with increased water reliability and resilience. With smart meters and a customer portal to monitor consumption in real time, low income customers have agency to better monitor usage to save water and reduce their monthly water bills.

Much of the El Paso region is economically-disadvantaged. Poverty is higher in the service area (18.8 percent in El Paso and 17.6 percent across El Paso County) compared to state (13.4 percent) and national (11.4 percent) levels. Median household incomes are also lower in the region ($48,886 in El Paso (city) and $48,292 in El Paso County) in relationship to Texas ($63,826) and the United States ($64,994).

	City of El Paso	El Paso County	Texas	United States
Poverty	18.8%	17.6%	13.4%	11.4%
Median Household Income	$48,866	$48,292	$63,826	$64,994

A substantial proportion of residents are considered very low-income, with nearly a quarter of El Pasoans living below the federal poverty line. In EPWater's service area, high concentrations of poverty can be found clustered in the urban core. However, the number of low-income neighborhoods is increasing toward the edges of the city, particularly to the east. A large portion of El Paso families earn less than their counterparts across Texas. Median household income in the region is roughly 75 percent of national levels. High levels of poverty also exacerbate other environmental and social challenges within the El Paso community.

Smart meters will help low-income communities to adopt water conservation measures in the homes that can save money. Online tools will enable these families to monitor water use and change behaviors to conserve resources.

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

Not applicable. The project will not limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands.

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?

Not applicable. The project will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species.

Required Permits or Approvals

This project will not require any environmental permits. This project will require an FCC license modification. EPWater obtained a license in 2019 and it applies to the entire city with unlimited collector points. The license must be renewed each 10 years at a cost of $250 paid to the FCC.

Overlap or Duplication of Effort Statement

There is no overlap between the proposed project and any other active or anticipated proposals or projects in terms of activities, costs or commitment of key personnel.
The proposal submitted for consideration under this program does not in any way duplicate any proposal or project that has been or will be submitted for funding consideration to any other potential funding sources.

Conflict of Interest Disclosure Statement

No potential conflict of interest exists with this application.