NTPUD Smart Water Meter Project

For North Tahoe Public Utility District

WaterSMART Grants: Water and Energy Efficiency Grants for Fiscal Year 2024

WaterSMART Grant ID Number: R24AS00052

Applicant: North Tahoe Public Utility District

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1.0 Executive Summary

Date: February 22, 2024

Applicant: North Tahoe Public Utility District (NTPUD)

City/County/State: Kings Beach, Tahoe Vista, Carnelian Bay, and Dollar Hill in Placer County, California

Applicant Category: NTPUD is a Category A Applicant (Water District)

Project Summary:
NTPUD is located in the communities of Kings Beach, Tahoe Vista, Carnelian Bay, and Dollar Hill, California on the north shore of Lake Tahoe. The project includes the purchase and installation of modern Advance Metering Infrastructure (AMI) Badger E-Series Ultra Sonic Meters to replace the existing Automated Meter Reading (AMR) water meters. The new meters will allow NTPUD to use the data to improve operational efficiencies and sustainability by effectively monitoring water usage and system efficiency, detecting malfunctions, and recognizing irregularities. The upgraded meters will also demonstrate other benefits such as improved accuracy of meter reads, remote detection of continuous usage, quick resolution of customer inquiries with real-time data, stabilized revenue, and overall improved efficiency in utility operations. This project is expected to result in 140 acre-feet of annual water savings and an associated 129,960 kWh annual energy savings. NTPUD's adopted Strategic Plan Goal #1 is to; *"Provide safe, efficient, sustainable water and wastewater services with a focus on industry best practices and continuous improvement*". Replacing NTPUD's metering equipment is vital to achieving this goal.

Project Timeline:
Project Duration: 24 months
Estimated Project Start Date: January 1, 2025
Estimated Project Completion Date: December 31, 2026

Located on Federal Facility: The project is not on a federal facility.

2.0 Project Location

NTPUD Smart Water Meter Project is located approximately 8 miles southeast of Truckee in the Kings Beach, Tahoe Vista, Carnelian Bay, and Dollar Hill communities of Placer County, California. The project's latitude is 39° 14' 46'' N and its longitude is 120° 3' 1'' W.

3.0 Project Description

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

The NTPUD was formed in 1948 under the State of California Public Utilities Code to provide wastewater services to the residents of the North Shore of Lake Tahoe. In November of 1967, water services were added to the NTPUD's responsibility. NTPUD currently serves 3,788 metered water connections. An initial trial of Badger E-Series Ultra Sonic Meters has proven successful as noted by a measurable benefit in water savings among properties where the new meters were installed. This proposal seeks funding assistance to purchase 2,815 Advance Metering Infrastructure (AMI) Badger E-Series Ultra Sonic Meters.

NTPUD's Smart Water Meter Project will replace older, inefficient meters with upgraded Advanced Metering Infrastructure (AMI). The new meters increase read accuracy from 94% accuracy to 100%. This allows NTPUD and its customers to observe data instantaneously, as opposed to waiting for monthly reads that are gathered via a drive-by method. The drive-by method requires utility staff to drive routes through NTPUD, gathering meter read data sets at specified points. The new meters and paired technology will allow for remote, real-time data collection. The upgrade project will reduce staff time associated with collecting reads and allow for quick response and resolution to leaks indicated by a spike in usage.

Task 1 – Order Inventory: Upon project initiation, the Operations Manager will contact Badger Meter to procure the specific number, size, and type of water meters required for the project. The meters and cellular endpoints will be procured following NTPUD's Contracting, Procurement, and Purchasing Policy. Badger Meters will be sole-sourced as per Policy paragraph e.; *Purchased items are to be standardized when feasible throughout NTPUD.*

Task 2 – Customer Outreach: NTPUD's Public Information Officer (PIO) will develop a comprehensive public outreach campaign to notify all District customers of NTPUD's Smart Water Meter Project. Specifically, the campaign will inform the customer of the benefits of Smart metering, outline the schedule, and discuss the potential impacts of the project. All NTPUD's water meters are located outside of the home in a below-grade utility box, typically located at the property line, meaning that customers do not need to be present during the meter placement. Water Quality Control Technicians will be made available before, during, and after meter installation to discuss all aspects of the project with the customer.

Task 3 – Meter Installation: Contracts and Planning Coordinator will prepare a Notice Inviting Bids (Notice) for the installation of the specific number, size, and type of water meters required for the project. The Notice will be publicly advertised in local newspapers and online using the PlanetBids System (PS System™) a fully automated web-based vendor registration and bid management system. Upon identification of the lowest responsive bidder and approval from the Board of Directors, the construction contract will be authorized by NTPUD's Contracts and Planning Coordinator.

Fifteen to twenty days before the scheduled meter upgrade, a Water Quality Control Technician will visit the property to mark the location of the curb stop and notify the owner of the impending project. Two to three days before the new meter installation a door hanger will be placed to notify the occupants of the scheduled water shutdown. During the initial visit, the technicians will ensure the meter assembly's accessibility by clearing out any debris or obstructions and confirming that it is in operating condition. If it is not in operating condition, they will schedule NTPUD's Utility Maintenance Workers to make the appropriate repairs in advance of construction.

During the meter upgrade, the Construction Manager overseeing the construction may meet with the customer at their property. During this time, they will explain the reason for upgrading the meter, the replacement process, how to read the meter, and answer any questions that the customer may have.

Occasionally, irregularities are encountered during the changeout process that may add to the time and materials required on-site. The following are examples:

- Limited clearance: The meter replacement may be challenging to access depending on its location. Meters may be in smaller utility boxes than current specifications require, or more unique spaces can add time to the process.

- Vegetation Clearing: Vegetation may have grown around the existing meter boxes to the extent that it will require clearing before the meter upgrade can occur.

Task 4 – Activate ORION Cellular End Point: The Project will use ORION® Cellular water endpoints. The endpoints utilize existing IoT (Internet of Things) cellular infrastructure to deliver meter reading data efficiently and securely to the utility in a Network as a Service (NaaS) approach. Leveraging existing cellular infrastructure, the NaaS solution offers all the performance benefits of AMI, while eliminating network-related maintenance and technology concerns and enhancing deployment flexibility. The topographical terrain in NTPUD's service area limits the products available for real-time data transmission but ORION® Cellular water endpoints have proven to be successful.

NTPUD's Water Quality Control Technicians will activate the endpoints and verify the encoder connection. Successful endpoint function can be confirmed through a web app demonstrating that communication has been verified to both the encoder and the network.

Task 5 – Quality Assurance: NTPUD's Water Quality Control Technicians will monitor the output message from the Badger E-Series meters to ensure that data is coming in utilizing the cellular endpoints. During this time, technicians will review the data for any anomalies. This quality assurance will allow NTPUD to identify and resolve issues before completing the conversion.

This process will happen concurrently as AMI meters are deployed. As more cellular endpoints are staged and go live, the Water Quality Control Technicians will perform fewer drive-by meter reads. Once all cellular endpoints are installed and operable, the technicians may still need to utilize drive-by meter read technology to gather data from any anomalies that are anticipated to be low in numbers.

Task 6 – Staff training on new software: The vendor will provide training on the Badger software to NTPUD staff. This includes on-site training and remote training. This training is necessary for staff to understand how to navigate the new system and maximize its enhanced capabilities.

Task 7 – Reporting: The Contracts and Planning Coordinator will fulfill reporting requirements throughout the project, including financial and performance reports. They will ensure proposal objectives are satisfied and, if necessary, notify the funding agencies of any required modifications in advance.

4.0 Evaluation Criteria

Evaluation Criterion A—Quantifiable Water Savings

1) **Describe the amount of estimated water savings.**

For this project, NTPUD is assuming a conservative twelve percent water conservation savings rate.

- NTPUD's historical annual water use from 2016 – 2020 is 1,167 acre-feet.
- NTPUD estimates water savings of at least 140 acre-feet per year from this project.

2) **Describe current losses.** Please explain where the water that will be conserved is currently going and how it is being used.

The water losses identified by this project are due to inaccurate metering from old, inefficient water meters and prolonged, unresolved leaks on the customer side. If indoors, these losses are distributed into the wastewater system where additional water is not beneficial and ultimately requires energy to treat before being released to the environment. If outdoors, these losses are typically caused by irrigation breaks, malfunctioning irrigation systems or overwatering. Excessive runoff is routed to storm drain systems which eventually reach Lake Tahoe, potentially posing water quality issues to this pristine natural resource.

The excessive losses do not provide any known beneficial use as most of this water either evaporates or runoffs into storm drain systems which eventually reach Lake Tahoe. Any excessive water that may infiltrate will travel underground to Lake Tahoe. Furthermore, the California Department of Water Resources designated the Tahoe Valley – Tahoe North Groundwater Basin as a very low-priority basin. Basin Prioritization is a technical process that utilizes the best available data and information to classify California's 515 groundwater basins into one of four categories high-, medium-, low-, or very low-priority. More information can be found here: https://water.ca.gov/Programs/Groundwater-Management/Basin-Prioritization

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

The United States Environmental Protection Agency states that 10% of households have leaks averaging 90 gallons or more each day, or 2,700 gallons a month (WaterSense 2021). A study conducted in Sacramento, California observed 13% of residential accounts having a leak at 7.5 gallons per hour (GPH) or greater (Schultz, et al. 2018). This equates to 180 gallons lost to leaks daily, or 5,400 gallons a month. For this reason, NTPUD used a conservative 12% of its total upgraded meters to quantify the number of water customers that may leak each month.

This estimate is in line with a 2014 pilot study at East Bay Municipal Utility District (EBMUD), which supplies water throughout the San Francisco East Bay, installed water AMI systems that provided hourly water consumption data (in units of tenths of a gallon per hour) to customers through an online web portal. EBMUD found water savings between 5-50%, with an average of 15%, among residential customers after the installation of the savings, while noting that some of these savings are likely due to customer-side leak repair (EBMUD 2014).

The following is a list of studies referenced to support savings estimates.

Berger, Michael A., Hans Liesel, Piscopo Kate, Sohn Michael D.; Exploring the Energy Benefits of Advanced Water Metering. August 2016. https://www.energy.gov/policy/articles/exploring-energy-benefits-advanced-water-metering

East Bay Municipal Utility District. "Advanced Metering Infrastructure (AMI) Pilot Studies Update." November 25, 2014

Schultz, W., Javey, S. and Sorokina, A. (2018), Smart Water Meters and Data Analytics Decrease Wasted Water Due to Leaks. J Am Water Works Assoc, 110: E24E30. https://doi.org/10.1002/awwa.1124

4) **Please address the following questions according to the type of infrastructure improvement you are proposing for funding.** See *Appendix A: Benefit Quantification* and Performance Measure Guidance for additional guidance on quantifying water savings.

(2) **Municipal Metering:** Municipal metering projects can provide water savings when individual user meters are installed where none exist to allow for unit or tiered pricing and when existing

individual user meters are replaced with advanced metering infrastructure (AMI) meters. To receive credit for water savings for a municipal metering project, an applicant must provide a detailed description of the method used to estimate savings, including references to documented savings from similar previously implemented projects. Applicants proposing municipal metering projects should address the following:

a. How has the estimated average annual water savings that will result from the project been determined? Please provide all relevant calculations, assumptions, and supporting data.
As stated in 4.0, number 3 above, the United States Environmental Protection Agency states that 10% of households have leaks averaging 90 gallons or more each day, or 2,700 gallons a month (WaterSense 2021). A study conducted in Sacramento, California observed 13% of residential accounts having a leak at 7.5 gallons per hour (GPH) or greater (Schultz, et al. 2018). This equates to 180 gallons lost to leaks daily, or 5,400 gallons a month. For this reason, NTPUD used a conservative 12% of its total upgraded meters to quantify the number of water customers that may leak each month.

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Current water distribution system losses have been determined by comparing water sales to water distributed. Water system losses are calculated to be 230 acre-feet in 2020.

NTPUD's distribution system water losses are documented in our 2020 Urban Water Management Plan. This document can be found here: https://ntpud.org/resources/master-plans/

c. For installing end-user water service meters, e.g., for a residential or commercial building unit., refer to studies in the region or in the applicant's service area that are relevant to water use patterns and the potential for reducing such use. In the absence of such studies, please explain in detail how expected water use reductions have been estimated and the basis for the estimations.
The potential for reductions in water use by individual users has been determined by referencing various peer-reviewed case studies. Specifically, case studies exploring the Average U.S. household water consumption attributed to leaks and the Energy Benefits for Advanced Water Metering.

d. What types (manufacturer and model) of devices will be installed and what quantity of each?
NTPUD will install the following AMI water meters

- Badger E-Series Ultra Sonic Meters for ¾” – 2” meters
    - 2,500 – E-Series SS, 3/4" (7-1/2), Thk Wshr, Enc, 4CXN2 ORION, 9D-0.01 Gal, SN Yr 9D & PBB, TT-10', BMI STD.
        - BMI Part No.: 100-2068
    - 250 – E-Series B-Alloy, 1"(10-3/4), Thk Wshr, Enc, 4CXN2 ORION, 9D-0.01 Gal, TS-766, SN Yr 9D & PBB, TT-10', BMI STD.
        - BMI Part No.: 109-2372
    - 50 – E-Series SS, 1-1/2" EL(13), Enc, 4CXN2 ORION, 9D-0.1 Gal, SN Yr 9D & PBB, TT-10', BMI STD.
        - BMI Part No.: 100-2942
    - 15 – E-Series SS, 2" EL(17), Enc, 4CXN2 ORION, 9D-0.1 Gal, SN Yr 9D & PBB, TT-10', BMI STD.
        - BMI Part No.: 100-1423

https://www.badgermeter.com/products/meters/ultrasonic-flow-meters/residential-ultrasonic-flow-meters/

- Orion Cellular Endpoints
    - 2,815 – EP Only, For Enc, ORION CELL C, Thru Ld Instl Kit, TT-8in, Grnd/Ocean Pause, BMI STD.
        - BMI Part No.: 103-6671

https://www.badgermeter.com/products/endpoints/orion-cellular-endpoints/#SubNavAnchor__Specifications

e. How will actual water savings be verified upon completion of the project?
NTPUD’s Water Quality Technicians will run the following reports regularly:

- Report to identify high water users: Water users that fall within a certain water consumption threshold will be contacted regarding high water use and resolution. Their usage will be monitored before and after notification to determine if a change was made because of the prompt alert.

- Report to identify unusual spikes in consumption: Similar to above, water users who demonstrate an unusual spike in water usage will be contacted regarding the abnormal water usage and resolution. Their usage will be monitored before and after notification to determine if a change was made because of the prompt alert.

- Report of upgraded meters detailed within this project scope: The water meters detailed within this project scope will have their usage monitored for a year before the upgrade, and a year following the upgrade. This data will be compared side by side to determine improved accuracies of water usage because of the meter upgrades.

- Annual Reporting of distribution and sales: The Water Quality Technicians will monitor annual water sales and water distribution to quantify losses. Annual losses will be compared to prior years to quantify water savings. Trends in gallons per capita per day will also be observed and reported.

Evaluation Criterion B — Renewable Energy

Subcriterion B.1—Implementing Renewable Energy Projects Related to Water Management and Delivery
This project is not a renewable energy project but will increase energy efficiency.

Subcriterion 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).
Water savings associated with AMI correspond with significant energy savings due to a reduction in pumping and treating. NTPUD has a mountainous service area boundary that requires water to be pumped from our treatment plant on the shores of Lake Tahoe or our groundwater wells to storage tanks. From the storage tanks in the first pressure zone, water needs to be pumped a second and third time to the tanks located in the upper-pressure zones. Additionally, NTPUD's wastewater needs to be pumped out of the Lake Tahoe basin for treatment. NTPUD's energy use falls into several large uses listed below including:

1. Raw Water Pumping
2. Water Treatment
3. Distribution within the service area
4. Wastewater Treatment

This project is anticipated to save 140 acre-feet in water, resulting in less 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.
This project is estimated to save 129,960 kWh annually through reduced pumping and wastewater treatment processes.

The energy required to pump water from Lake Tahoe into NTPUD's water system is 2,850 kWh for every 1 million gallons. This calculation was developed by considering the energy required to pump up in elevation changes among tanks, and individual pump motor efficiency. The annual 140 acre-foot savings was converted to 45.6 million gallons. This number was multiplied by 2,850 kWh to determine 129,960 kWh saved as a result of reduced pumping.

How will the energy efficiency improvement combat/offset the impacts of climate change, including an expected reduction in greenhouse gas emissions.
According to 2019 data from the Environmental Protection Agency, 25% of greenhouse gases are generated from electricity production. By lessening electricity use at the pumping and treatment stages of the water supply system, this project reduces the City's reliance on fossil fuels. As a result, this will reduce environmental damage from harvesting non-renewable resources and their corresponding greenhouse gas emissions during generation. Reduced emissions will also lower negative effects to human health through improved air quality. This project offsets climate change through reduced emissions, slowing warming effects to the earth.

Using the EPA's Greenhouse Gas Equivalencies Calculator, the 129,960 kWh savings achieved through reduced pumping and treatment processes of 140 acre-feet of water will result in an avoided 92.1 metric tons of carbon dioxide emitted into the atmosphere annually.

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?
Raw water for NTPUD's water system is primarily supplied from Lake Tahoe to the treatment plant through the lake intake system which includes intake screens, piping, and three submersible lake pumps. At the end of the treatment train, three booster pumps, pump the potable water from Lake Tahoe 's elevation of 6,229' to the pressure zone #1 storage facilities with a base elevation of 6,562'. Two pumps are 125 hp and the third is 100 hp.

From pressure zone #1 tanks, water is pumped through pressure zone 2 to pressure zone #2 tanks at an elevation of 6,809 feet, by two (2) 75 hp pumps, with capacities of 650 gpm each. This pump/tank combination referred to as the Zone #1 Booster, also feeds a booster station on Regency Way (Kingswood West booster). Two (2) 50-hp pumps with actual capacities of 450 gpm each supply water to pressure zone #3 at an elevation of 7,050'.

This project is anticipated to save 140 acre-feet of water annually, resulting in less pumping.

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.
The energy savings estimate originates from raw water supply storage in Lake Tahoe, the point of diversion.

Does the calculation include any energy required to treat the water, if applicable?
Yes. The calculations above include the energy required to treat the raw water, pump the potable water, and pump the sewer water. The energy-saving calculations do not include the energy required to treat wastewater as this task is not the responsibility of NTPUD. NTPUD's wastewater is treated by the Tahoe-Truckee Sanitation Agency.

Will the project result in reduced vehicle miles driven, in turn reducing greenhouse gas emissions? Please provide supporting details and calculations.
Yes. Annually, the project will result in 1,320 less vehicle miles driven.

- Current meter reading practice is to drive all the roads in the District to gather the monthly meter readings.
- The vehicles used for this data collection are 2019 GMC Sierras. These average 19 miles per gallon in city. According to the EPA, this vehicle type emits 468 grams of CO2 for every mile driven. This rate calculates an annual reduction of 618,315 grams or 1,363 lbs. of CO2 because of the completed project.

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).
NTPUD utilizes renewable energy components when possible; however, none are included in this project.

Evaluation Criterion C — Other Project Benefits
Resilience and Sustainability Benefits. Will the project address a specific water and/or energy sustainability concern?
This project will enhance drought resilience and address the future impacts of climate change by making customers more aware of their water use patterns and opportunities to save water. Table 1 below summarizes several potential water conservation benefits of AMI and identifies whether these benefits provide immediate drought benefits and/or long-term water supply benefits. Some of these benefits will allow customers to make short-term decisions that will affect temporary reductions in water use, others will allow for longer-term decisions that may take years to implement but will have impacts on future water use and some affect both categories.

Table 1. Summary of Drought and Long-Term Conservation benefits from AMI

Conservation Issue	Drought	Long Term
Leaks		
• Leak identification	X	X
• Leaks-burst type (higher than normal use) not necessarily continuous	X	X
• Leak intermittent but continuous like toilet leak	X	X
• Obtain leak information for better leak threshold than relying on billing data	X	X
• Using hourly data to pinpoint location of leak with customer	X	X
• Verify leak repair	X	X
• Low flow leak identification, possibly unmeasured		X
Irrigation		
• Budget verification—are they watering correctly?	X	X

• Irrigation rules enforcement drought time real monitoring	X	
• Differentiate indoor versus outdoor use		X
• Troubleshoot irrigation leaks based on change in volume	X	X
Drought Response		
• Enforce watering restrictions	X	X
• Excessive use warnings	X	
• Better real time demand analysis -have people starting irrigating again?	X	X
• Real time assessment of consumption for customer classes	X	X
• Enhancing conservation during drought to obtain short term benefit	X	
• Investigate water waste prohibitions, follow up on customer reports	X	X
General Conservation		
• Identifying conservation opportunities: Help customers and staff help make better decisions in general	X	X
• Evaluate conservation programs		X
• Real time consumption evaluation based on campaign	X	X
• Resolve customer disputes over billing	X	X
• More informed on what customers are doing so we can respond accordingly to tell us what we should market	X	X
• Better integration with smart home technology		X
• Identify conservation opportunities	X	X
• Ability to monitor submeters	X	X
• Enhanced use of on line tools	X	X
• High Bill notification	X	X
• More accurate metering with better price signals for customers. Opportunity to consider static meter technology.	X	X
Data Benefits		
• Evaluating baseline usage	X	X
• Evaluate potential customer savings from different strategies based on better data	X	X
• Better estimates of household profiles	X	X
• Real time evaluation of water efficiency	X	X
• Improving our recommendations, with better data to validate our savings estimates, e.g., analysis of drip conversion program		X
• Helpful information for budget-based rates	X	X
• Differentiate outdoor versus indoor use	X	X
• Making data available for energy/water balance	X	X
• Ability to obtain daily and true monthly consumption patterns by zone and customer classes. Not just estimates.	X	X

Supply Side or District Side Conservation		
• Real time pressure sensing	X	X
• Evaluate where loss is occurring via DMAs		X
• Better track system flushing and reduce flushing with better water age	X	X
• Meter sizing	X	X
• Detect water theft	X	X
• Hydrant meter data-real time consumption and location information		X
• Remote shutoffs when accounts are closed	X	X
• Identification of meter failure or suspect meter accuracy	X	X
• Ability to detect pipeline leaks acoustically at meter		X
• More accurate information on water quality for flushing from real time hydraulic model, e.g., digital twin.	X	X
Large Customer Specialized		
• Large user establish typical diurnal use, shift work	X	X
• Direct feed to Data Control Centers (DCSs)	X	X
• Submeter, irrigation meter or additional device applications	X	X
• Additional sensors added to network for a fee		X
• Ability to export hourly water use data to other applications.	X	X
Note: Table from East Bay Municipal Utility District, Energy WaterSMART: Water and Fiscal Efficiency Grants for Year 2023.		

- **Explain and provide details of the specific issue(s) in the area that is impacting water resilience and sustainability. Consider the following:**
    - **Describe recent, existing, or potential drought or water scarcity conditions in the project area.**

The severe drought that all of California and specifically the Lake Tahoe Basin has been well documented. The Lake Tahoe Basin Management Unit Climate Change Trend Summary prepared by the US Forest Service Pacific Southwest Region 5 Ecology Program *The recent California drought (2012-2016) was arguably the most severe of the last millennium (Griffin and Anchukaitis 2014, Mann and Gleick 2015). The drought occurred due to low precipitation combined with record-high temperatures (Griffin and Anchukaitis 2014).The event greatly reduced mountain snowpack, and spring runoff (DWR 2014, U.S. Geologic Survey 2014, Monitor 2020). The 2015 April SWE was so low that Belmecheri et al. (2016) estimated that this was a one-in-3100-year event. In 2015, there was a multi-year (2012-2015) snow water equivalent deficit of approximately 5 trillion gallons of water (-1.78x107 acre feet) in the Sierra Nevada (Margulis et al. 2016), which is equal to 13.5% of the capacity of Lake Tahoe. Given the prediction of more extreme and prolonged drought events (Berg and Hall 2017), the effects observed in this last drought likely portend common conditions in the future (Diffenbaugh et al.*

2015). In the eastern Sierra Nevada, droughts have shifted between longer (4-year) periods of drought and periods of wetness, thus increasing the interannual variability in this region (Biondi and Meko 2019).

The summary can be found via the link below:
https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd985001.pdf

- **Is the project in an area that is experiencing, or recently experienced, drought or water scarcity?**

Yes, since May 13, 2020 the NTPUD's Stage 2 water conservation measures have been in effect.

Water Conservation Regulations, CURRENT Reduction Measures (Stage 2)

- Outdoor irrigation schedule
  - EVEN addresses: Monday, Wednesday, Friday
  - ODD addresses: Sunday, Tuesday, Thursday
  - NO watering on Saturday
- Water may not be applied to hard surfaces (i.e. asphalt driveways), except for pavement resurfacing/sealing or public health/safety reasons
- Visitor accommodations may only wash linens upon request. A placard or notice shall be placed in each guest room.
- All public entities, hotels, motels, restaurants, and other visitor-serving facilities shall prominently display informational materials, placards, or decals provided by the District

CONTINUED Reduction Measures (Stage 1)

- Leaks must be repaired when found or within 10 days of District notification of leak. Note: The District will notify property owners following water meter reads if there is an unusually high reading.
- Irrigation, runoff, or flooding onto hard surfaces or any non-irrigated areas is prohibited
- Automatic shut-off valves or nozzles are required on all hoses. Note: Free hose nozzles are available at the District office.
- Irrigation must be winterized by Nov. 1 of every year
- Landscaping may not be irrigated:
  - Between the hours of 9am – 6pm
  - During, or within 48 hours after, measurable precipitation
  - When the air temperature is less than 40 degrees Fahrenheit

The District always operates at a Stage 1 level, which includes, California mandatory water regulations, basic good practices, and helps prevent waste. The Stage 2 regulations include conservation measures and use requirements to help the District meet the 20 percent reduction goal.

- **Describe any projected increases to the severity or duration of drought or water scarcity in the project area. Provide support for your response (e.g., reference a recent climate-informed analysis, if available).**

NTPUD is located in the Truckee River watershed. Recently, the Bureau of Reclamation released its study of the Truckee Basin in California and Nevada, projecting that climate change may impact water supplies in the 21st century. This study found that due to warming, basin reservoirs are also projected to have higher rates of evaporation, and will be less resilient during future droughts. Lake Tahoe's surface is projected to drop below its natural rim more frequently.

The Study can be found via the link below:
https://acwi.gov/useful-links/truckee_river_basin_study.pdf

- **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.**

Liberty Utilities provides electric service to NTPUD's water system. While Liberty Utilities is working to increase its reliance on renewable energy, it estimates its total renewable power mix was 37%, or 63% reliance on unsustainable sources of energy. The projects proposed reduction in energy usage will reduce NTPUD's demand on fossil fuels.

More information can be found:
https://california.libertyutilities.com/north-lake-tahoe/residential/evolve/eliminating-coal-from-our-power-mix.html

- **Please describe how the project will directly address the concern(s) stated above.**

The project will reduce water demand and identify customer water losses earlier, meaning ultimately less water will be drawn from Lake Tahoe. With less water drawn, there will be more water available to maintain healthy habitats, recreational opportunities, and hydropower generation on the Truckee River. Additionally, NTPUD will utilize less energy thereby reducing our carbon footprint.

- **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?**

This project will allow NTPUD to better customer water use patterns in real-time, allowing for more flexible management of the water system and more targeted conservation outreach. For example, having information on what time of day customers are irrigating would allow for better messaging and outreach during droughts**.**

- **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.

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

The project will conserve 140 acre-feet of water and it will remain in Lake Tahoe.

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

The conserved water will remain in Lake Tahoe

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

Yes, water within Lake Tahoe is controlled by the Truckee River Operating Agreement. The agreement can be found here: https://www.usbr.gov/mp/troa/final/troa_final_09-08_full.pdf

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

Yes. Nevada and California, the United States Government, Truckee Meadows Water Authority (TMWA) and the Pyramid Lake Paiute Tribe signed the Truckee River Operating Agreement on September 6, 2008. TROA implementation began in December of 2015.

The agreement brings an end to historic uncertainty between Nevada and California over the distribution of the river's water.

Ecological Benefits. In addition to the separate WaterSMART Environmental Water Resources Projects NOFO, this NOFO places a priority on projects that result in ecological benefits, through this section and other sections above, consistent with the SECURE Water Act. Please provide information regarding how the project will provide ecosystem benefits, including the following:

- **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).**

Yes. Using the Information for Planning and Consultation tool (IPaC) on the U.S. Fish and Wildlife Service website, the following endangered or threatened species were identified as potentially residing within the NTPUD's watershed and/or river system or being influenced by this area. It identifies the project site as an area of influence (AOI) if a species may be indirectly impacted by

activities within the defined space. In this case, the species' habitats would all benefit from the proposed increase in the 140 acre-feet of water maintained within the natural environment and reduction of greenhouse gases because of this project.

North American Wolverine – Deep, persistent, and reliable spring snow cover (April 15 to May 14) is the best overall predictor of wolverine occurrence in the contiguous United States. The project's reduction of greenhouse gases will benefit this species.

Sierra Nevada Red Fox – U.S. Fish and Wildlife Service has determined this species threats include reduced prey availability and competition with coyotes resulting from reduced snowpack levels.

California Spotted Owl – This bird inhabits dense woodlands and riparian zones. This proposed threatened species does not have a recovery plan under the ESA.

Yellow-billed Cuckoo – This bird uses wooded habitat with dense cover and water nearby, including woodlands with low, scrubby, vegetation, overgrown orchards, abandoned farmland, and dense thickets along streams and marshes. This threatened species has a recovery plan under the ESA.

Northwestern Pond Turtle – This turtle inhabits grasslands and open woodland around ponds. This proposed threatened species does not have a recovery plan under the ESA.

Sierra Nevada Yellow-legged Frog – This frog lives in California's Sierra Nevada mountains in lakes, ponds, marshes, meadows, and streams at elevations ranging from 4,500 to 12,000 feet. This endangered species does not have a recovery plan under the ESA.

Cui-ui – This fish depends on Pyramid Lake for its rearing habitat and the lower Truckee River for its spawning habitat. They are only able to access their spawning habitat when hydrologic conditions are suitable. This endangered species has a recovery plan under the ESA.

Lahontan Cutthroat Trout – This fish's habitat is cold, high-elevation mountain streams in California to lower-elevation and highly alkaline desert lakes in Nevada. This threatened species has a recovery plan under the ESA.

Carson Wandering Skipper – The Carson wandering skipper is a small tawny orange butterfly found in grassland habitats on alkaline substrates. This endangered species has a recovery plan under the ESA.

Monarch Butterfly – Monarch butterflies live mainly in prairies, meadows, grasslands and along roadsides. This candidate species does not have a recovery plan under the ESA.

As this project seeks to upgrade water meters at preexisting meter locations, NTPUD only anticipates improved ecological benefits as a result of this project through the increase of water maintained in the natural environment. The maintained water will be used to improve water quality and quantity, which are vital to the health and success of the impacted species.

- **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, recreational benefits, etc.).**

The project will conserve 140 acre-feet of water annually and it will remain in Lake Tahoe. Discharges from Lake Tahoe are controlled by the Truckee River Operating Agreement. As such, the water additional water will help maintain water temperature and promote water-based recreation activities. Historically, the water level of Lake Tahoe drops below the rim (no water flows out of Lake Tahoe into the Truckee River) every several years. The additional water within Lake Tahoe will help reduce the frequency and/or duration of these events.

- **Will the proposed project reduce the likelihood of a species listing or otherwise improve the species status?**

The proposed project will benefit the listed species, but it is unlikely the proposed project alone will reduce the likelihood of a species listing.

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

The AMI meters will reduce the amount of irrigation run-off containing chlorinated water, as well as toxic chemicals from the application of fertilizer, herbicides, and pesticides applied to modern lawns. The runoff from these lawns can drain to nearby catch basins which drain to our creeks and Lake Tahoe which is critical habitat.

Also, less mileage is driven to gather meter reads and follow up on high bill investigations, the project is anticipated to avoid 1,363 lbs. of CO2. This will result in improved air quality through the reduction of miles driven.

Climate Change: E.O. 14008 emphasizes the need to prioritize and take robust actions to reduce climate pollution; increase resilience to the impacts of climate change; protect public health; and conserve our lands, waters, oceans, and biodiversity.

- **Describe how the project addresses climate change and increases resiliency. For example, does the project help communities adapt to bolster drought resilience?**

This project will reduce water losses and lower water consumption District-wide. This will be accomplished through instant leak detection, and proactive demand management using real-time data. The resulting water savings from this project will reduce the strain on water resources, keeping more water in the environment longer. This maintained water will improve recreational opportunities and overall water quality. Concurrently, improved water levels and quality have a complementary effect on wildlife habitat and endangered or threatened species that exist in these areas. Climate change makes water supplies and deliveries difficult to predict. This project helps prepare for and adapt to changing conditions through improved water efficiency.

- **Does the project seek to improve ecological resiliency to climate change?**
  Yes, this project will reduce water losses through effective demand management by 140 acre-feet annually. Water conserved by NTPUD will remain in the Lake Tahoe watershed.

- **Does the proposed project seek to reduce or mitigate climate pollutions such as air or water pollution?**
  Yes, less mileage is driven to gather meter reads and follow up on high bill investigations, the project is anticipated to avoid 1,363 lbs. of CO2. This will result in improved air quality through the reduction of miles driven.

- **Does the proposed project include green or sustainable infrastructure to improve community climate resilience?**
  No.

- **Does the proposed project contribute to climate change resiliency in other ways not described above?**
  No, the benefits described above accurately capture the project impact.

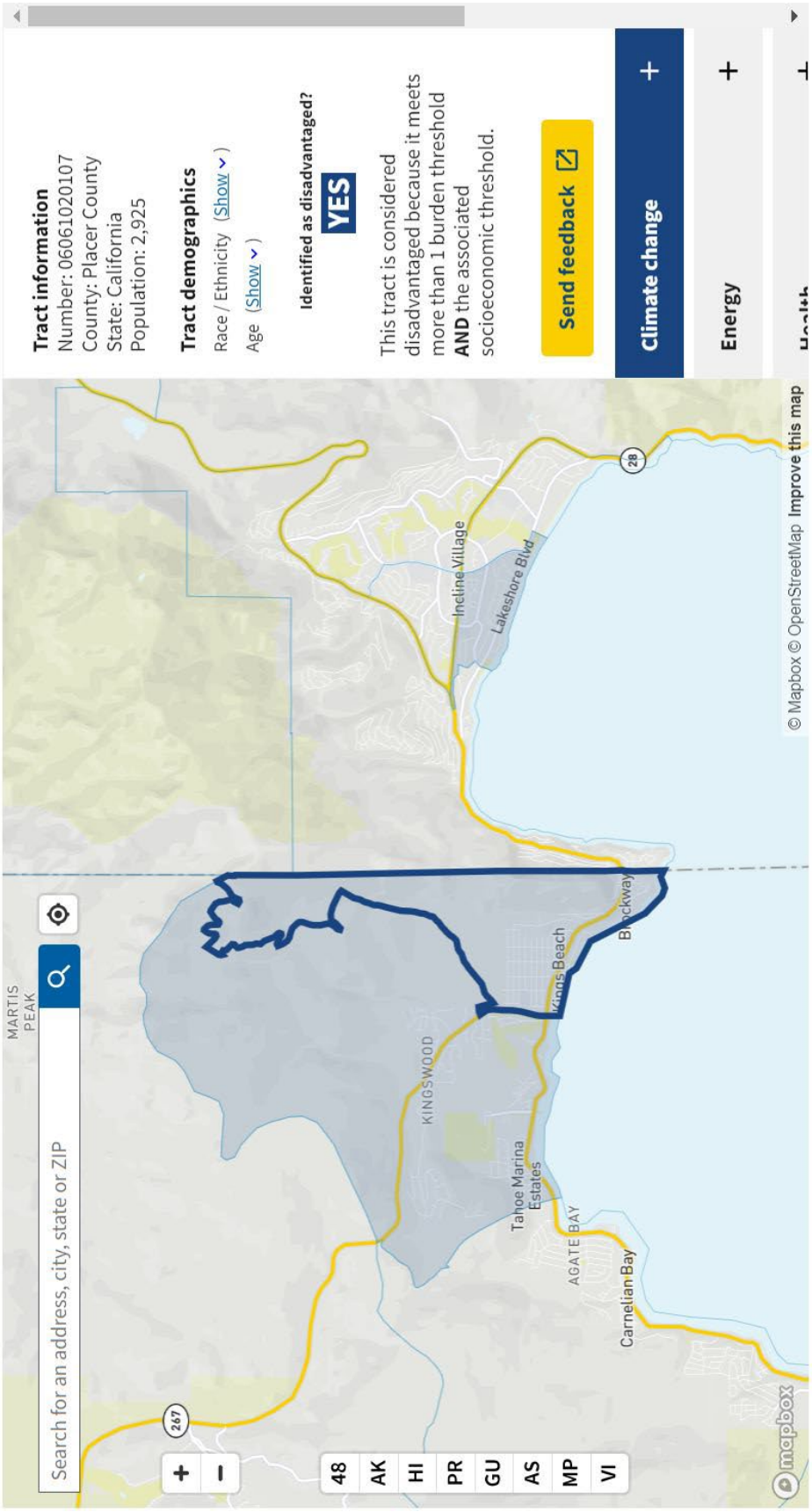
Evaluation Criterion D — Disadvantage Communities, Insular Areas, and Tribal Benefits

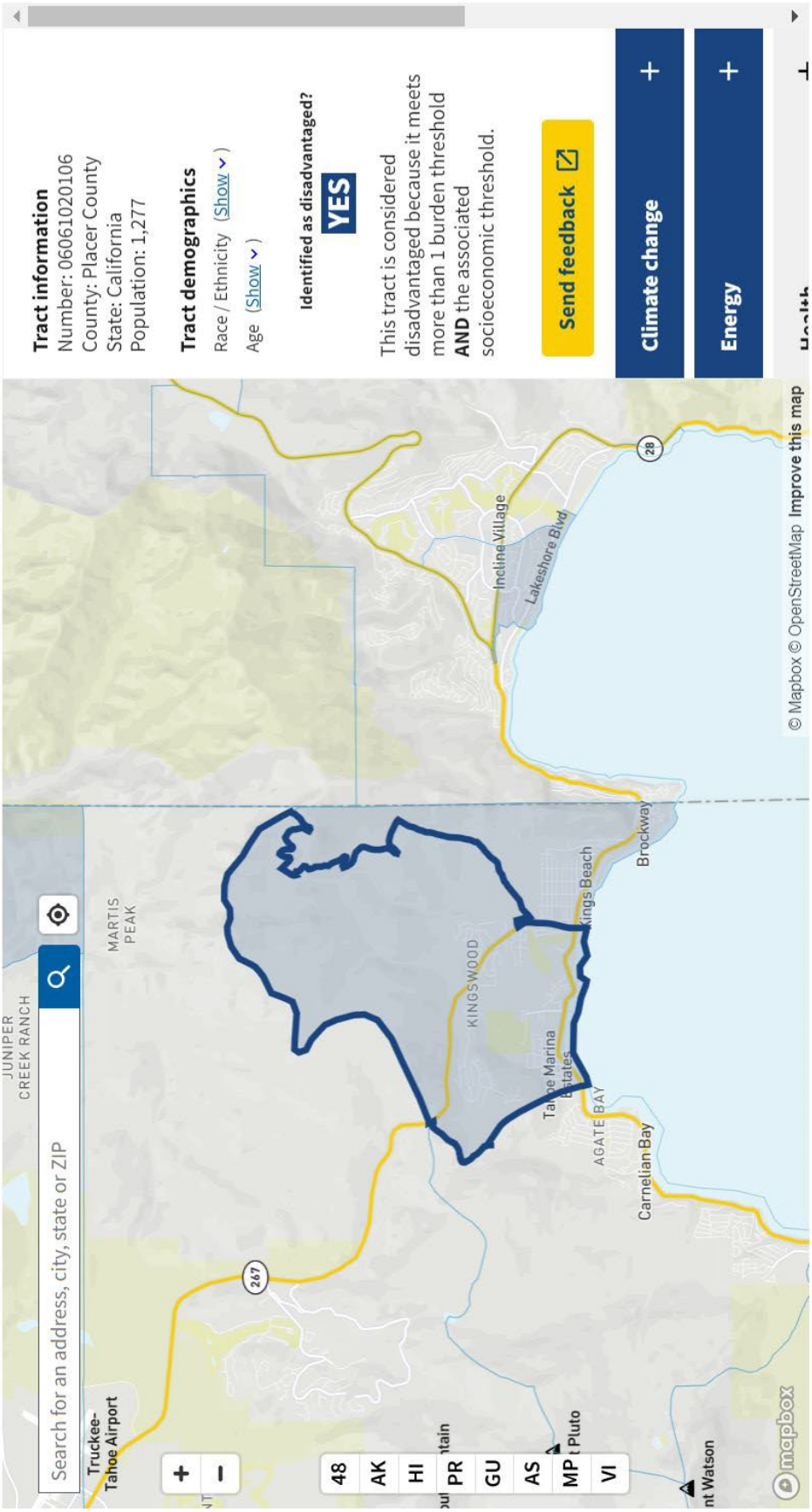
Subcriterion D.1. Disadvantaged Communities

E.O. 14008 affirms the advancement of environmental justice for all through the development and funding of programs to invest in disadvantaged communities. This criterion, which is used to identify projects that advance the Justice 40 Initiative, includes all Federally recognized Tribes and Tribal entities, and any disadvantaged communities in insular areas (American Samoa, Guam, the Northern Mariana Islands, or the Virgin Islands) identified pursuant to the following criteria.

- **Please use the White House Council on Environmental Quality's interactive Climate and Economic Justice Screening Tool (CEJST), available online at Explore the map Climate & Economic Justice Screening Tool (screeningtool.geoplatform.gov/en/#17.59/36.63278/-105.181329) to identify any disadvantaged communities that will benefit from your project. The CEJST developed by the White House Council on Environmental Quality is a geospatial mapping tool that utilizes publicly available, nationally consistent data sets related to climate change, the environment, health, and economic opportunity to identify disadvantaged communities. In addition to identifying specific census tracts that are disadvantaged, the CEJST includes the lands of Federally recognized Tribes as disadvantaged communities. In addition, regardless of whether a Federally recognized Tribe has land, all Federally recognized Tribal entities are considered disadvantaged communities for the purposes of the Justice40 Initiative.**

The communities of Kings Beach, CA, and Tahoe Vista, CA are listed as disadvantaged communities according to the CEJST. Kings Beach is in Census Tract #06061020107, and Tahoe Vista is in Census Tract #06061020106. Screenshots from the Climate & Economic Justice Screening Tool are shown below:


Tract information
Number: 06061020107
County: Placer County
State: California
Population: 2,925
Tract demographics
Race / Ethnicity (Show)
Age (Show)
Identified as disadvantaged?
YES
This tract is considered disadvantaged because it meets more than 1 burden threshold AND the associated socioeconomic threshold.
Send feedback
Climate change
Energy
Search for an address, city, state or ZIP
48
AK
HI
PR
GU
AS
MP
VI
Incline Village
Lakeshore Blvd
Kings Beach
Brockway
KINGSWOOD
Tahoe Marina Estates
AGATE BAY
Carnelian Bay
MARTIS PEAK
© Mapbox © OpenStreetMap Improve this map
mapbox


Tract information
Number: 06061020106
County: Placer County
State: California
Population: 1,277
Tract demographics
Race / Ethnicity (Show)
Age (Show)
Identified as disadvantaged?
YES
This tract is considered disadvantaged because it meets more than 1 burden threshold AND the associated socioeconomic threshold.
Send feedback
Climate change
Energy
Search for an address, city, state or ZIP
JUNIPER CREEK RANCH
MARTIS PEAK
KINGSWOOD
Incline Village
Lakeshore Blvd
Brockway
Kings Beach
Tahoe Marina
Bates
AGATE BAY
Carnelian Bay
Truckee-Tahoe Airport
267
28
48
AK
HI
PR
GU
AS
MP
VI
© Mapbox © OpenStreetMap Improve this map
mapbox

- **If applicable, describe how the proposed project will serve or benefit a disadvantaged community, identified using the tool. For example, will the project improve public health and safety by addressing water quality, add new water supplies, provide economic growth opportunities, or provide other benefits in a disadvantaged community?**

2,420 out of 2,815 meters being replaced are within the disadvantaged communities of Kings Beach and Tahoe Vista, CA. This equates to 86% of the meters being upgraded. Currently, customers are not aware of water leaks or overuse until after they receive their monthly bill. This project will benefit these communities as they realize real-time water usage and water savings by identifying and repairing their leaks, or change their water overuse habits; thereby, resulting in reducing the water consumption costs on their monthly water bills.

E.1.4.2 Subcriterion D.2. Tribal Benefits

The Department is committed to strengthening tribal sovereignty and the fulfillment of Federal Tribal trust responsibilities. The President's memorandum, *Tribal Consultation and Strengthening Nation-to-Nation Relationships*, asserts the importance of honoring the Federal Government's commitments to Tribal nations.

This project does not benefit Tribal nations and is, therefore, not applicable to subcriterion D.2.

Evaluation Criterion E — Complementing On-Farm Irrigation Improvements

This project does not complement on-farm irrigation improvements.

Evaluation Criterion F — Readiness to Proceed

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

NTPUD is prepared to begin the project immediately upon grant contract execution or when allowed to begin for reimbursement purposes. NTPUD already has a small existing network of AMI meters. Any new meters added within that coverage area will immediately be available for customer use.

- **Identify and provide a summary description of the major tasks necessary to complete the project.**
  NTPUD will purchase meters from the meter vendor. This process is explained further in the Project Description sections. Once the meter procurement schedule is known,

NTPUD will begin customer outreach to educate them about the project. Concurrently, NTPUD will publicly bid the installation of the new AMI Water meters and the cellular endpoints. Staff training on utilization of the new software will happen during the final stages of this project.

- **Describe any permits that will be required, along with the process for obtaining such permits.**
  No permits will be required for this project.

- **Identify and describe any engineering or design work performed specifically in support of the proposed project.**
  A bid package need to be prepared to complete this project.
  1. Meter Installation – Request for Proposal (RFP)

  The bid package will be prepared by NTPUD Engineering Manager and Contracts and Planning Coordinator each of whom have extensive experience preparing similar packages.

- **Describe any new policies or administrative actions required to implement the project.**
  No new policies or administrative actions are necessary for this project.

- **Describe the current design status of the project. If additional design work is required prior to construction, describe the planned process and timeline for completing the design work.**
  NTPUD has completed project planning and received a quote from Badger Meter for the required meters and cellular endpoints. Upon project initiation, the Operations Manager will contact Badger Meter to procure the specific number, size, and type of water meters required for the project.

  The only remaining design work is assembly of the public bid package for Meter Installation – Public Bid (Bid)
  a. Status: NTPUD has boilerplate construction documents that have been prepared by the District Council. The Contracts and Planning Coordinate will make the necessary modifications for this project. The Engineering Manager will provide a quality control review before public advertising. Total time requirement 4 weeks. This work will occur in the fourth quarter of 2025 and is included in the proposed project schedule below.

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

include, but are not limited to, the following: complete environmental and cultural compliance; mobilization; begin construction/installation; construction/installation (50% complete); and construction/installation (100% complete). Was the expected timeline for environmental and cultural compliance discussed with the local Reclamation regional or area office?

The timeline for environmental and cultural compliance was not discussed with the local Reclamation regional or area office. NTPUD has extensive experience completing required environmental permitting and has identified the proposed project to be categorically exempt from CEQA and NEPA.

Table 2. Proposed Project Schedule

NTPUD Smart Water Meter Project - Project Schedule								
	2025				2026			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Project Planning								
Grant Funding Financial Agreement								
AMI Meter Procurement (material lead time)								
Customer Outreach and Education								
Environmental Compliance								
Construction								
Solicit Construction Proposals Preparation of Bid Documents								
Mobilization								
Construction 50% Complete								
Construction 100% Complete								
Quality Assurance								
Staff training on new software								
Project Reporting								

Evaluation Criterion G — Collaboration

Please describe how the project promotes and encourages collaboration. Consider the following:

- **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?**

  NTPUD received generally widespread support from its customers and stakeholders in the community as well as other water utilities for its AMI initiatives. Our customers enjoy being able to monitor their consumption patterns more closely.

- **What is the significance of the collaboration/support?**

On the customer side, AMI data allows NTPUD to better work with its customers to reduce their water use. For large commercial and industrial water users, AMI data helps them to better manage their operations and look for ways to save water. For homeowners, hourly data allows for more accurate leak detection, and real-time comparisons against anticipated water usage, which is especially beneficial to second homeowners whose primary residence is elsewhere. With AMI, NTPUD is better able to serve its customers by developing tools like leak alerts, high water use notifications, and water budgets that are dependent on more frequent meter reads.

In addition, NTPUD collaborates with other local water agencies and is active in organizations like the Tahoe Water Suppliers Association.

- **Will this project increase the possibility/likelihood of future water conservation improvements by other water users?**
  Yes. The implementation of advanced metering that offers real-time and improved accuracy data continues to grow in popularity. NTPUD looks forward to contributing valuable data insights to its regional partners and beyond, that will encourage other communities to introduce similar technology.

- **Will the project benefit multiple sectors and/or users (e.g., agriculture, municipal and industrial, environmental, recreation, or others)?**
  Yes, this project will benefit all water users across all sectors that are within the NTPUD water boundaries.

- **Please attach any relevant supporting documents (e.g., letters of support or memorandum of understanding).**
  None

Evaluation Criterion H — Nexus to Reclamation
This project does not have a connection to a Reclamation project or Reclamation activity.

5.0 Performance Measures

Provide a brief summary describing the performance measure that will be used to quantify actual benefits upon completion of the project (e.g., water saved or better managed, energy generated or saved). For more information calculating performance measure.
Data Analysis of Consumptive Trends: Accurate and timely water measurement is a vital component of effective demand management. NTPUD staff will be able to contact water customers promptly when a potential leak has been identified. The ability to observe and resolve leaks quicker will result in reduced water losses. One of the methods used to measure success will be the observation and comparison of user water consumption data before and after high usage notification. The Water Quality Control Technician will run regular reports that

will identify high water users, or users with a sudden water increase. They will reach out to these customers, accordingly, advising them of the usage and offering resources and recommendations for resolution. These staff members will continue to observe usage trends following the initial customer contact to see if the water usage has returned to normal.

NTPUD Water and Energy Demands: The water and energy conserved as a result of this project will be calculated based on one-year average water usage before and after AMI information is presented to customers. Full data analyses are not envisioned until approximately one year after the actual analysis of AMI-provided data is assembled. Comparative water usage must be based on approximately one year before the AMI installation and one year after. An anticipated significant benefit from the project is the additional information on apparent losses and the potential to identify and track low-flow leaks which may ultimately result in significantly reduced demand. The success of specific incidents of leak management and other interventions can be documented on a case-by-case basis as illustrated in Section 4, Evaluation Criterion A—Quantifiable Water Savings.

6.0 Budget Narratives

The proposed project cost/budget is listed in Table 3. The discussion that follows provides a detailed explanation of project costs. No other non-federal or third-party contributions are anticipated. Below is a summary of funding sources.

Table 3. Proposed Project Budget

Budget Item Description	Unit Rate	Quantity	NTPUD Funding	USBR Funding	Total Cost
Personnel					
Engineering Manager	$ 96.05	80	$ 7,684	$ -	$ 7,684
Utility Operations Manager	$ 84.56	80	$ 6,765	$ -	$ 6,765
Public Information Officer	$ 56.86	80	$ 4,549	$ -	$ 4,549
Contracts & Planning Coordinator	$ 43.44	320	$ 13,901	$ -	$ 13,901
Construction Manager	$ 72.97	720	$ 52,538	$ -	$ 52,538
Water Quality Control Technician	$ 37.27	1,440	$ 53,669	$ -	$ 53,669
Operations Maintenance Worker II	$ 42.60	720	$ 30,672	$ -	$ 30,672
Personnel Sub-Total			$ 169,778	$ -	$ 169,778
Fringe Benefits					
Cost of Fringe Benefits	51%		$ 86,587	$ -	$ 86,587
Personnel and Fringe Benefits Total			$ 256,364	$ -	$ 256,364
Construction					
3/4" Meter Equipment	$ 203.00	2,500	$ 253,750	$ 253,750	$ 507,500
1" Meter Equipment	$ 239.00	250	$ 29,875	$ 29,875	$ 59,750
1.5" Meter Equipment	$ 572.00	50	$ 14,300	$ 14,300	$ 28,600

2" Meter Equipment	$ 770.00	15	$ 5,775	$ 5,775	$ 11,550
Cellular Endpoint	$ 126.00	2,815	$ 177,345	$ 177,345	$ 354,690
Placer County Sales Tax	7.25%	1	$ 50,797	$ 18,955	$ 69,752
AMI Meter Installation	$ 125.00	2,815	$ 351,875	$ -	$ 351,875
		Construction Total	$ 883,717	$ 500,000	$ 1,383,717
		Total Costs	**$ 1,140,081**	**$ 500,000**	**$ 1,640,081**

Table 4. Total Project Cost

Source	Amount
Costs to be reimbursed with the Federal Funding	$ 500,000
Costs to be paid by the applicant (NTPUD)	$ 1,140,081
Total Project Funding	$ 1,640,081

The Budget Narrative is attached as Attachment A, the Budget Detail and Narrative is attached as Attachment B, and SF-424A is submitted with this application.

7.0 Environmental and Cultural Resources Compliance

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

1. **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 proposed project will not impact the surrounding environment. The purchased meters will be installed within existing water meter boxes at the respective property line.

2. **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 project area is not within a Federal threatened or endangered species, or designated critical habitat. Additionally, since this project will be removing and replacing meters within existing water meter boxes, there will be no effect on the local habitat and no disturbance to special status species.

3. **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.**
   There are potential intermittent riverine features within the project boundary based on the National Wetlands Inventory that may meet the Clean Water Act (CWA) criteria of a wetland or other waters of the United States. However, since this project will be removing and replacing meters within existing water meter boxes, there will be no ground disturbance or an effect on wetlands or other surface waters.

4. **When was the water delivery system constructed?**
   The District's water delivery system was constructed between the 1920's to the 1970's, depending on the subdivision.

5. **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.**
   This project will not result in any modifications of or effects to individual features of an irrigation system, as no irrigation systems (e.g., headgates, canals, or flumes) exist with the project area.

6. **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.**
   Not applicable. This project is not within an irrigation district.

7. **Are there any known archeological sites in the proposed project area?**
   There are no known archeological sites within the proposed project area.

8. **Will the proposed project have a disproportionate and adverse effect on any communities with environmental justice concerns?**
   This project will not have a disproportionate or adverse effect on any communities with environmental justice concerns. This project is not located within an environmental justice region.

9. **Will the proposed project limit access to, and ceremonial use of, Indian sacred sites or result in other impacts on Tribal lands?**
   The project will not limit access to, and ceremonial use of, Indian sacred sites or any other impacts on Tribal lands. There are no sacred sites or Tribal lands within the project area.

10. **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 purchased meters will be installed within existing water meter boxes at the respective property line.

H.1.1 National Environmental Policy Act

NEPA requires Federal agencies such as Reclamation to evaluate, during the decision-making process, the potential environmental effects of a proposed action and any reasonable mitigation measures. Before Reclamation can make a decision to fund an award under this NOFO, Reclamation must comply with NEPA. Compliance with NEPA can be accomplished in several ways, depending upon the degree and significance of environmental impacts associated with the proposal.

This project is a Categorical Exclusion (CE) under NEPA as it is to remove and replace 2,815 water meters with new ultrasonic flowmeters utilizing cellular endpoints for data communication. The upgraded meters will be installed in the existing water meter boxes. See the attached Categorical Exclusion Checklist.

This project is also Categorically Exempt from the California Environmental Quality Act (CEQA), Class 1, Section 15301(b). The District will be filing a CEQA Notice of Exemption for this project.

8.0 Required Permits or Approvals

Permits are not required. All equipment will be installed on NTPUD-owned facilities.

9.0 SF-424D Assurances

Form SF-424 D Assurances – Construction Programs is submitted with this application.

10.0 Overlap or Duplication of Effort Statement

NTPUD does not anticipate any overlap with this project and any other project.

11.0 Conflict of Interest Disclosure Statement

NTPUD has no actual or potential conflicts of interest with any Federal employee in the Federal funding program or have been involved in the review and selection of the award.

12.0 Uniform Audit Reporting Statement

The Uniform Audit Reporting Statement is submitted with this application.

13.0 Certification Regarding Lobbying

The Certification Regarding Lobbying is submitted with this application.

14.0 Letters of Support

The project is well supported but no formal letters of support have been collected for this grant application.

15.0 Official Resolution

The Official Resolution No. 2024-04 is submitted with this application.

H.1 Environmental and Cultural Resource Considerations

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

1. 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 proposed project will not impact the surrounding environment. The purchased meters will be installed within existing water meter boxes at the respective property line.

2. 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 project area is not within a Federal threatened or endangered species, or designated critical habitat. Additionally, since this project will be removing and replacing meters within existing water meter boxes, there will be no effect on the local habitat and no disturbance to special status species.

3. 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.

   There are potential intermittent riverine features within the project boundary based on the National Wetlands Inventory that may meet the Clean Water Act (CWA) criteria of a wetland or other waters of the United States. However, since this project will be removing and replacing meters within existing water meter boxes, there will be no ground disturbance or an effect on wetlands or other surface waters.

4. When was the water delivery system constructed?

   The District’s water delivery system was constructed between the 1920’s to the 1970’s, depending on the subdivision.

5. 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.

This project will not result in any modifications of or effects to individual features of an irrigation system, as no irrigation systems (e.g., headgates, canals, or flumes) exist with the project area.

6. 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.

   Not applicable. This project is not within an irrigation district.

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

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

8. Will the proposed project have a disproportionate and adverse effect on any communities with environmental justice concerns?

   This project will not have a disproportionate or adverse effect on any communities with environmental justice concerns. This project is not located within an environmental justice region.

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

   The project will not limit access to, and ceremonial use of, Indian sacred sites or any other impacts on Tribal lands. There are no sacred sites or Tribal lands within the project area.

10. 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 purchased meters will be installed within existing water meter boxes at the respective property line.

H.1.1 National Environmental Policy Act

NEPA requires Federal agencies such as Reclamation to evaluate, during the decision-making process, the potential environmental effects of a proposed action and any reasonable mitigation measures. Before Reclamation can make a decision to fund an award under this NOFO, Reclamation must comply with NEPA. Compliance with

NEPA can be accomplished in several ways, depending upon the degree and significance of environmental impacts associated with the proposal.

This project is a Categorical Exclusion (CE) under NEPA as it is to remove and replace the District's existing 3,500 water meters with new ultrasonic flowmeters utilizing cellular endpoints for data communication. The upgraded meters will be installed in the existing water meter boxes. See the attached Categorical Exclusion Checklist.

This project is also Categorically Exempt from the California Environmental Quality Act (CEQA), Class 1, Section 15301(b). The District will be filing a CEQA Notice of Exemption for this project.

RESOLUTION 2024-04
A RESOLUTION OF THE NORTH TAHOE PUBLIC UTILITY DISTRICT SUPPORTING THE SUBMISSION OF AN APPLICATION UNDER THE BUREAU OF RECLAMATION WATERSMART GRANTS: WATER AND ENERGY EFFICIENCY GRANTS FOR FISCAL YEAR 2024 AND FISCAL YEAR 2025

WHEREAS, the North Tahoe Public Utility District owns and operates a public water system that serves customers on the North Shore of Lake Tahoe and has installed water meters at each point of connection to record water use for each customer.

WHEREAS, the North Tahoe Public Utility District plans to increase water supply sustainability through investments in existing water infrastructure including the replacement of 3,500 water meters at each point of connection with new ultrasonic flowmeters utilizing cellular endpoints for data communication.

WHEREAS, the new water meters support water efficiency and conservation for municipal users in our district through a customer portal that gives customers the power to manage their water use through easy-to-understand consumption graphs and configurable leak notifications and by providing timely, visual access to their water usage behavior. The District will receive water usage reports daily that will promote early leak detection and excessive water use, which will save water and money for the customers on their monthly water bills.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE NORTH TAHOE PUBLIC UTILITY DISTRICT AS FOLLOWS:

1. Supports the submission of an application under the Bureau of Reclamation WaterSMART: Water And Energy Efficiency Grants For Fiscal Year 2024 and Fiscal Year 2025 and certifies that the NTPUD is capable of providing the amount of funding and in-kind contributions specified in the funding application; and that NTPUD will work with the Bureau of Reclamation to meet established deadlines for entering into a cooperative agreement.

2. The General Manager is hereby authorized and directed to sign and file, for and on behalf of the NTPUD, a Financial Assistance Application for a financing agreement from the Bureau of Reclamation for the planning, design, and construction of the following project: NTPUD Smart Water Meter Project.

3. That NTPUD hereby agrees and further does authorize the aforementioned representative or his/her designee to certify that the Agency has and will comply with all applicable state and federal statutory and regulatory requirements related to any financing or financial assistance received from the Bureau of Reclamation.

PASSED AND ADOPTED BY THE BOARD OF DIRECTORS OF THE NORTH TAHOE PUBLIC UTILITY DISTRICT THIS 9th DAY OF JANUARY 2024, BY THE FOLLOWING ROLL CALL VOTE:

AYES:	DIRECTORS THOMPSON, HUGHES, MOURELATOS, AND PRESIDENT COOLIDGE
NOES:	NONE
ABSTAIN:	NONE
ABSENT:	NONE

Sarah Coolidge, President
Board of Directors

ATTEST:

Bradley A. Johnson, P.E.
General Manager/CEO

Attachment A – Budget Narrative

a. Personnel

NTPUD staff be involved in this project beginning with securing the grant funding agreement through construction and project closeout.

Engineering Manger

NTPUD's Engineering Manager will provide management oversight throughout the duration of the project. They will maintain that the project adheres to its timeline as specified in this proposal through regular site visits and meetings to discuss project developments and milestones.

Utility Operations Manager

The Utility Operations Manager will be responsible for procuring the specific number, size, and type of water meters required for the project. They will also provide support to the Water Quality Control Technicians and Operations Maintenance Workers throughout the course of the project.

Public Information Officer

NTPUD's Public Information Officer (PIO) will develop a comprehensive public outreach campaign to notify all District customers of NTPUD's Smart Water Meter Project. Specifically, the campaign will inform the customer of the benefits of Smart metering, outline the schedule, and discuss the potential impacts of the project.

Contracts & Planning Coordinator

Contracts & Planning Coordinator responsible for preparing the public bid package for installation of the AMI water meters and cellular end points. Additionally, they will prepare evaluation reports, grant progress reports, and work with some customers.

Construction Manager

NTPUD's Construction Manager will serve as Project Manager for the overall project. Project support will be provided under all phases of the project, including analyzing field data, contractor coordination, documenting construction, and working with some customers.

Water Quality Control Technician

NTPUD's water quality control technicians will visit the property in advance of construction to mark the location of the curb stop and notify the owner of the impending project. Following construction, they will activate the endpoints and verify the encoder connection. Additionally, they will be responsible for updating meter records in NTPUD's customer information system.

Operations Maintenance Worker

Operations Maintenance workers will support the Water Quality Control Technicians in advance of construction to make any necessary repairs in advance of construction. Additionally, they will be consulted on meter issues and be available to review test results.

b. Fringe Benefits

Fringe benefit options include Federal Insurance Contributions Act, Unemployment Insurance, health insurance, eye insurance, dental insurance, life insurance, Long term Disability Insurance, workers compensation insurance, and retirement plans. The total calculated fringe benefit is 51.06%.

c. Travel

Does not apply.

d. Equipment

Does not apply.

e. Supplies

Does not apply.

f. Contractual

Does not apply.

g. Construction

1. Procurement – NTPUD will procure the specific number, size, and type of water meters required for the project. The meters and cellular endpoints will be procured following NTPUD's Contracting, Procurement, and Purchasing Policy. Badger Meters will be sole-sourced as per Policy paragraph e.; Purchased items are to be standardized when feasible throughout NTPUD.
2. Meter Installation – Contracts and Planning Coordinator will prepare a Notice Inviting Bids (Notice) for the installation of the specific number, size, and type of water meters required for the project. The Notice will be publicly advertised in local newspapers and online using the PlanetBids System (PS System™) a fully automated web-based vendor registration and bid management system. Upon identification of the lowest responsive bidder and approval from the Board of Directors, the construction contract will be authorized by NTPUD's Contracts and Planning Coordinator.

h. Other

Does not apply.