An Application for Grant Funding
To
U.S. Department of the Interior

Bureau of Reclamation

WaterSMART – 2013 Water and Energy Efficiency Grant

Project Title:

Water Loss Reduction and Energy Saving Project

Applicant:

COMMONWEALTH UTILITIES CORPORATION

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Section I. Technical Proposal and Evaluation Criteria

I.A Executive Summary

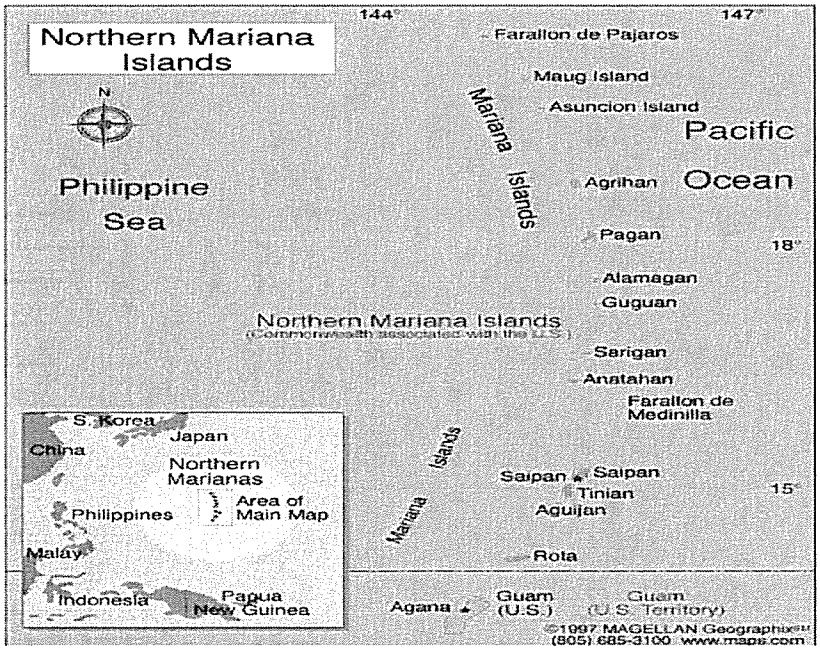
Date: January 17, 2013
Applicant: The Commonwealth Utilities Corporation
P.O. Box 501220, Saipan, MP 96950
Commonwealth of the Northern Mariana Islands
Telephone (670) 235-7025/ Fax (670) 235-5138

This project proposes to reduce the amount of water losses due to leaks present in the CUC water system, to reduce the amount of non-revenue water, to increase the amount of accounted-for revenue producing water used by customers on the CUC water system, and to reduce energy consumption related to water delivery. The scope of work proposed under this project includes ① installing approximately 500 water meters on existing water services to replace existing meters that have failed due to inferior design for the tropical environment of Saipan; ② installing approximately 500 water meters on domestic and agricultural services without meters; ③ performing comprehensive leak detection and repairs throughout the CUC water system; ④ disconnecting illegal connections; ⑤ installing a SCADA system to closely monitor motor operation for efficiency improvement on a portion of the system.

This project will be completed within twenty four months of commencing.

I.B Background Data:

Project Location: Island of Saipan – Commonwealth of the Northern Mariana Islands



The Applicant: The Commonwealth Utilities Corporation (CUC) commenced operations in late 1987, and is a semi-autonomous agency of the Commonwealth of the Northern Mariana Islands (CNMI) government. The CNMI entered into a political union with the United States in 1975 and became a Commonwealth in 1978. We are a 300 mile archipelago consisting of 14 islands, with a total land area of 183.5 square miles. CUC is the regional provider of utility services for the three main islands of the CNMI, and is responsible for the construction, maintenance and operation of the Commonwealth's power, water and wastewater services on the three inhabited islands of Saipan, Rota and Tinian.

This project is located on Saipan, the Northern Mariana Island with the most severe water quality and water quantity concerns. In the 2010 census, the total population of the CNMI was 53,833, with approximately 90% of the population living on Saipan. In the 2010 census, the CNMI's median annual household income was $22,455.00 which is 25% below the U.S. average. These figures indicated that approximately 46% of the Commonwealth's population lives at or below the U.S. poverty level. Although the 2010 census figures for household income are still not available, it is widely anticipated that the number of residents living at or below the poverty level will increase. The loss of our once thriving garment manufacturing industry and the recent implementation of U.S. Immigration laws are key factors for this assumption.

Saipan has 145 ground water wells, two springs and one rainwater catchment as the source of water supply for the island. Logically, fresh potable water on tiny islands in the Ocean is limited in supply and expensive to acquire, pump and distribute. The Saipan water distribution system consists of underground piping, much of which was installed 40 or more years and is in a deteriorated condition. Disinfection treatment is by chlorine injection either at the storage tanks or thru direct feed wells. Saipan has never achieved 24 hour water pressure to all customers. This lack of consistent pressurization leads to other undesirable consequences to the system. However, CUC, with the technical and financial assistance of the EPA and Department of the Interior, Office of Insular Affairs, has made tremendous progress in the last five (5) years and is delivering 24 hour water pressure to 90 percent of the population on Saipan.

Historically, these remote, economically challenged islands in the Pacific have struggled to comply with the Clean Water Act and Safe Drinking Water Act standards and requirements. The United States of America filed a civil action (USA v. Commonwealth Utilities Corporation and the Commonwealth of the Northern Mariana Islands Civil Case CV 08-0051) seeking injunctive relief and the assessment of civil penalties against the Commonwealth Utilities Corporation under the Clean Water Act and the Safe Drinking Water Act. The Stipulated Orders were intended to resolve certain long standing deficiencies relating to CUC's Water and Wastewater systems. The islands are experiencing a 'perfect storm' in that while the aging infrastructure is failing, and Federal stipulated orders are being enforced, the islands suffer from a severe economic downturn due to the closing of its only industry (garment factories), and decreased tourism, thus making infrastructure repairs and replacements economically impossible without considerable financial assistance from others.

This project will assist the CUC account for water it delivers and improve revenue by billing according to actual use, resulting in more conservation by customers. This project will help CUC continue its goal to find and repair leaks which have a dramatic impact on the water system in Saipan. Finally, this project will help the CUC monitor and reduce energy consumption by well pumps and booster pumps throughout the system. This project will become a companion project to similar projects undertaken by the CUC in cooperation with the US Environmental Protection Agency in recent years. Together, these projects are designed to provide water system improvements, reduce the quantity of wasted water, reduce the energy cost of pumping water, and increase revenue from water use. It complements continuing efforts to reduce waste, reduce operation and maintenance costs, and seeks to limit operational impacts on water rates. Total project amount is $600,000 of which $300,000 is requested under the Water SMART grant program, and $300,000 will be provided by CUC [$270,000 in funds and $30,000 as in-kind contribution]. The scope of this project is included in a Water and Wastewater Master Plan currently being developed by the CUC under an OIA & EPA funded project.

I.C Technical Project Description:

This project proposes five elements, as follows.

1. Perform leak detection services
2. Repair located leaks
3. Install new water meters on unmetered services
4. Replace broken water meters
5. Install SCADA system (pilot phase)

1. Perform Leak Detection Services – This aspect of the project proposes employing the services of a leak detection specialist to survey areas of the water system that have either never been surveyed for leaks utilizing leak detection equipment or areas that are known to suffer significant losses. The areas to be investigated will be selected based on the greatest water losses. The project manager will determine where leak detection has previously been performed on the water system. The project manager will evaluate expected water demand by tank service area given the number of customers and the amount of water delivered to the tank service area from wells pumping into the respective reservoirs. Leak detection will include review of as-builts drawings of the water distribution system, listening for leaks in the lines with state-of-the-art leak detection equipment, field verifying sounded leaks, and identifying unknown connections indicated through the leak detection listening equipment and test holes. A report of results shall be provided by the leak detection consultant including locations of found leaks and details about the piping so repairs can be efficiently made. On-going leak detection capability is currently being developed by CUC but because the system is large, it is necessary to engage a consulting firm to bring the system leak detection inventory to a manageable level for an initial position for CUC.

Because of the high amount of water loss throughout the CUC water system, any reduction in the water loss will result in lower production costs and lower operation and maintenance cost. With the execution of this aspect of the project, water loss will be identified, located, and then repaired. The result will be savings which can be reflected in lower user rates.

2. Perform Leak Repairs – This aspect of the project proposes repairing the leaks identified and located under the preceding task. Specific leak repairs needed cannot be quantified at this point but past leak repair projects provide a general understanding on what the scope entails and what the cost might be. Repairs are anticipated to range from replacement of pipe segments, to repair coupling installation, to valve replacement, to service saddle replacement. Materials needed to affect the repairs will be listed based on the leak detection report discussed above and then purchased with funds provided under this project. CUC man-power and equipment will be utilized to make the repairs.

As with the leak detection discussed above, repairing leaks will save water, save pumping electrical costs, and contribute to lower user rates.

3. Water Meter Installation – Unmetered: – This aspect of the project proposes to install approximately 500 water meters for customers who do not currently have a water meter on their service line. Some of these installations are for known customers who have not yet had a meter installed, but many will be for unrecorded customers or illegal connections discovered by investigation. This project will also identify agricultural properties that currently receive unmetered and often unbilled water from CUC, and will adequately meter their usage. (Using same meters as detailed below). New meters and related materials will be purchased with funds provided under this project. The new meters, meter boxes, and related materials will be installed utilizing CUC man-power and equipment.

Water meters combined with a volume based user rate provide a bill to the customer for actual water used. This method of charging for water is employed by CUC. Customers who waste water will pay more and customers who conserve will pay less. In this way, meters tend to reduce water use and provide the utility greater resources to operate the system if customers use excessive amounts of water.

4. Water Meter Installation - Replacement: - This project includes the island-wide removal/replacement of 500 failed and non-functioning water meters installed on CUC water system and for the installation of 500 new meters to ensure that all water customers served by CUC are accurately metered. This will allow CUC to bill all customers based on consumption under the existing metered rate. This typically results in a considerable improvement in water conservation by the customer. CUC has an inventory of failed meters. New meters will be purchased with funds provided under this project and installed utilizing CUC man-power and equipment.

During a Federally funded meter project in 2004, "Smart Meters" approved by Water Task Force and the CUC, were installed island-wide by contractors. These meters have proven to be poorly suited to the tropical climate of the CNMI, where meters with electronic components can be submerged in water for long periods of time during the rainy season.

This has resulted in nearly 100% failure rate of the initial 12,799 meters installed. The manufacturer supplied 11,332 warranty replacement meters, which were installed at CUC expense, but the same failure rates continue to occur with the replacement meters. As these 'smart meters' are used in other climates, without this failure rate, the assumption is that they are the wrong meter for this application. CUC proposes to replace such meters, as they fail, with new meters, with proven performance records in climates and conditions similar to the CNMI.

CUC engaged the consulting firm CH2MHill to evaluate various types of meters for use in Saipan for installations under constant pressure and under periodic pressure. The CUC selected two of the recommended meters for trial use on the CUC system to test performance under both conditions and in the present environment - the Sensus i-PERL; and the Sensus accuSTREAM. These meters were recommended and selected based on their suitability for use with Saipan's high chloride content water and the best combination of cost, durability, and compatibility with CUC's existing meter boxes and meter reading electronics.

The i-PERL is intended for installations where air volume could pass through the meter without registering. Several i-PERL meters were given to CUC for performance testing purposes in the spring of 2011. They were installed and to date have performed without problems. The CUC is satisfied that these meters meet the needs of the utility and will perform well on the water system.

The accuSTREAM is a conventional positive displacement meter to be installed in continually pressurized lines. The main case and register is made of composite (plastic) materials. The measuring chambers are a corrosion-resistant thermoplastic material suitable for aggressive water, like Saipan's. The CUC has been replacing meters with Sensus's accuSTREAM meters for several months. These meters are performing satisfactorily also. Both meters are compatible with the Sensus AMR/AMI data collection used by CUC's meter readers.

This project will improve the water system by enhancing the utility's ability to better manage water production, delivery, and billing, and will result in improved water conservation by customers as bills typically are much higher when accurately metered.

This capital improvement project is necessary to achieve accurate metering of all water customers, directly affecting the utility's ability to collect essential revenues, as well as assisting in the identification and alleviation of huge 'non-revenue' water losses through theft, and leakage. All construction will be within the existing facility footprints.

5. SCADA – This aspect of the project proposes an initial phase of a larger plan to provide SCADA for the operation and data acquisition of the water system components. The first phase, proposed under this project, is to evaluate SCADA alternatives and select a system that can be expanded over time to provide additional control and data acquisition as the utility is ready. A consultant versed in SCADA will be employed to review the options for a SCADA system in Saipan. The scope of work will include a review of the facilities, the existing pump controls, software and hardware needs and options, communication

alternatives, and the desired data acquisition capacity by CUC. The scope will include an evaluation of SCADA alternatives. It will also include a cost estimate for each alternative and a proposed phased plan to reach full SCADA capability to the level suitable for the utility. The first phase includes installing the computer, software, and communications for the reservoirs and approximately 10 wells.

The objective of the SCADA system is to optimize management and operation of the water system, and minimize production and operation costs. Together, the measures, facilities, and work proposed under this project will reduce costly water loss, reduce wasteful energy consumption, lower the utilities operation and maintenance cost, contribute to controlling utility rates for its customers, improve the efficiency of the water pumping systems, and provide better data for further refinement of operations. SCADA equipment will be installed through a contract with a SCADA professional installation firm.

I.C Evaluation Criteria:

Criteria 1. - Water Conservation

This project will result in quantifiable and sustained water savings.

Describe the amount of water saved. For projects that conserve water, please state the estimated amount of water expected to be conserved (in acre-feet per year) as a direct result of this project. Please provide sufficient detail supporting how the estimate was determined, including all supporting calculations.

What is the applicant's average annual acre-feet of water supply?

CUC closely monitors water production. It produces 3.4 billion gallons per year or, 10,412 acre ft. of water. Of that amount, 60% is lost, or non-revenue (unbilled) water.

Where is that water currently going (e.g., back to the stream, spilled at the end of the ditch, seeping into the ground, etc.)?

Most non-revenue leaks from deteriorating infrastructure, returning to the ground. A smaller percentage is being obtained by residents and agricultural sites with no CUC water metering and as-yet undiscovered by the utility.

Where will the conserved water go?

The conserved water from leak repairs will no longer need to be pumped from the ground, and chlorinated. Storage tanks should fill, allowing pumps to be turned off at times, while providing 24 hour water pressure to all customers.

Newly metered water will become revenue-producing income for the utility, and typically leads to conservation efforts by the customer who is finally billed for actual usage.

- **SCADA and Automation**: SCADA and automation components will provide water savings as wells more efficiently deliver water to the storage facilities by optimizing management and operation of the water system, and minimizing production and operation costs. Together, the measures, facilities, and work proposed under this project will reduce costly water loss, as storage tank over-filling will be reduced or eliminated at 10 sites initially. The water conservation will not be the primary savings or accomplishment of this aspect of the project. Energy conservation through improved water management will be the primary beneficial outcome.

Reclamation Sub criterion No. A.1 (b)—Improved Water Management

Up to 5 points may be awarded if the proposal will improve water management through measurement, automation, advanced water measurement systems. Describe the amount of water better managed. For projects that improve water management but which may not result in measurable water savings, state the amount of water expected to be better managed, in acre-feet per year and as a percentage of the average annual water supply. Please use the following formula:

This initial SCADA project is only designed to serve as a pilot program, to get the utility started in the use of modern monitoring and control technologies.

$$\frac{\text{Estimated 733 acre ft better managed}}{\text{Average 10,412 acre ft water supply}} \qquad (7\% \text{ of annual water supply})$$

Reclamation Sub criterion No. A.2.—Percentage of Total Supply

Provide the percentage of total water supply conserved: State the applicant's total average annual water supply in acre-feet. Please use the following formula:

$$\frac{\text{1561.86 acre ft per year conserved}}{\text{10,460 acre ft per year produced}} \qquad 15\% \text{ water conservation}$$

Reclamation Sub criterion No. A.3.—Reasonableness of Costs

Please include information related to the total project cost, annual acre-feet conserved (or better managed), and the expected life of the improvement. Use the following calculation:

$$\frac{\$600{,}000}{\text{15,618.6 acre ft (10 yrs)}} \qquad \$38.42 \text{ per acre ft of water saved}$$

Evaluation Criterion B: Energy-Water Nexus

Up to 16 points may be awarded based on the extent to which the project increases the use of renewable energy or otherwise results in increased energy efficiency.

Reclamation Sub criterion 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 management project.

Please see attached electric calculations from CUC rates consultant 'Economist.com' showing calculations supporting current energy charges per 1000 gallons of water delivered to metered customers. The latest energy charge for revenue water ('billable') included in customer rates is $3.54 per 1000 gallons. This charge is based on electric usage by every well pump, booster pump and other devices utilized in production and distribution of domestic potable water. This charge is based on a small service charge plus: billable water in gallons (112,419,272 gal/month) divided by kWh usage by water production and distribution (972,761 kWh/month) = 115 gallons of billable water per kWh. Or put another way: 115 gallons of water delivered to customer costs 1 kWh or $.40451 worth of electricity. Thus, the customer is billed for the power used to produce and distribute the 40% revenue water as well as the **60% non-revenue** water lost to leakage, theft, etc.

If the same calculation is done using total water produced (283,000,000 gal/mo) divided by usage by water production and distribution (972,761 kWh/month) = 290 gals/kWh or 290 gallons of water produced costs 1 kWh or $.40451. Therefore, for the purposes of calculating energy savings, it is more accurate to use $1.39 as the actual cost of power per 1000 gallons produced (both rev and non-rev water) as it excludes the service fee and spreads the cost over the total gallons produced.

If 15% of 10,412 acre ft annual water production is conserved by this project, it will result in 1561.8 acre ft. of valuable water resource saved.
This equals 508,879,000 gallons conserved annually.
508,879,000 / 1000 = 508,879 X $1.39 = $ 707,342 in energy savings.

This savings of 2,162,735 kWh of diesel-generated electricity will have other environmental benefits in addition to directly reducing the cost for each customer's water bill.

A quantifiable $707,342.00 worth of electricity (2,162,735 kWh) will be conserved annually through reduced need for pumping and chlorinating 500 million gallons of water that is currently being lost to leaks and other non-revenue water losses.

Evaluation Criterion E: Other Contributions to Water Supply Sustainability

*Up to **14 points** may be awarded for projects expected to contribute to a more sustainable water supply. This criterion is intended to provide an opportunity for the applicant to explain how ... how the project will provide other benefits to water supply sustainability within the basin.*

Points may be awarded for projects that include other benefits to water supply sustainability. Projects that do not address a need/adaptation strategy identified in a Basin Study or do not help expedite future on-farm irrigation improvements, may receive maximum points under this criterion by thoroughly explaining additional project benefits.

Will the project increase awareness of water and/or energy conservation and efficiency efforts?

Will the project serve as an example of water and/or energy conservation and efficiency within a community?

- Yes it will. Customers who are moved from estimated billings to metered billings typically find they have been using (including leaks, etc) far more water than the estimated amount. The increase in cost leads to the customer locating and repairing leaks on their property, resulting in further conservation. Further, the well-publicized efforts by CUC to conserve as well as the savings to the customer, are likely to promote further enthusiasm for conservation efforts by the public.

Will the project increase the capability of future water conservation or energy efficiency efforts for use by others?

- Yes. Metering customers and repairing leaks in the distribution system will enable further leak detection and repair, and increase consciousness and enthusiasm for conservation.

Does the project integrate water and energy components?

- Yes as discussed above. Conserving water leads to direct and considerable energy savings as less water needs to be pumped and treated in order to supply the same customer usage.
- Expected water conservation = 500 million gallons of water annually.
- By achieving the 15% non-revenue water conservation – the expected diesel-generated electricity savings = a quantifiable $707,342 in energy savings (2,162,735 kWh)

Criterion F: Implementation and Results

Reclamation Sub-criterion No. F.1.—Project Planning

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

Identify any district-wide, or system-wide, planning that provides support for the proposed project.

CUC currently has a contract with Duenas, Camacho and Associates along with Ch2MHill for a comprehensive Master Plan for Water and Wastewater for the CNMI, including a 20 plan, made up of several 5 year plans. The project is funded by OIA and EPA and is on-going. Much of the field investigation has been accomplished, identifying and documenting the capital resources of the CUC water and wastewater systems. The consultant, working in conjunction with CUC engineering staff, has documented and applied a priority scoring system to some 40 major water projects needed in the years ahead. The consultant is also conducting a financial feasibility study as the prescribed projects carry a price of about $200M. The draft document is well over 1000 pages and not yet ready for release or inclusion in this application.

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

The Master Plan will include as very high priority projects:

Continued efforts at leak detection and repairs of leaks or replacement of deteriorated piping systems.

Water Meter Installation – Unmetered customers and customers with failed water meters. (Also a Stipulated Order mandate to meter every customer and bill according to actual metered consumption)

Implantation of a SCADA system to better manage water production, distribution, and energy use. CUC currently has no SCADA capabilities. This project will enable a professional evaluation of our needs, and procure and install a small pilot system that will get CUC started on the road to modernizing the monitoring and control systems.

A copy of the EPA-approved final Master Plan will be made available to Reclamation upon completion, but that is not due until near the end of FY 2013.

I.C Performance Measures:

The principle objectives of this project are three-fold:
1. To reduce water loss and waste
2. To increase the amount of metered water for billing
3. To improve water production management

In order to determine the success of the project and quantify the achievement of the objectives, the following measures will be established and tracked.

Objective	Measures
1. Reduce water loss/waste	A. Beginning monthly production by tank service area B. Beginning metered quantity by tank service area C. Beginning difference between A and B D. Track monthly production, metered quantity, and difference E. Estimate rate of each leak found. F. Observe response in production vs. metered quantity following each leak repaired. G. Compare final values of production and metered quantities at end of project to the estimated amount outlined herein (15%)
2. Increase metered water	A. Beginning number of customers that are unmetered or have malfunctioning meters B. Beginning total metered quantity C. Track number of meters installed for both unmetered services and replacements D. Track total metered quantity E. Compare final values of metered quantity F. Compute remaining number of unmetered services and malfunctioning meters
3. Improve water management [via SCADA]	A. Track reservoir levels with time B. Observe reservoir level throughout the day and week C. Compare reservoir level to well production and service meter quantity for tank service area D. Track activity to deliver water from reservoir to reservoir E. Use data to reveal suspected leak areas and measure resultant water loss reduction following repairs

Section II. Environmental and Cultural Resources Compliance

This project involves working within existing rights-of-way and working on existing infrastructure so there will be minimal impact to the environment. It is anticipated that the project will be eligible for a categorical exclusion. The CUC will consult with the required Government Agencies in the CNMI, including the Division of Environmental Quality. CUC expects to be able to forward consultations recording no significant environmental impact to the Bureau of Reclamation so a FONSI can be issued.

Agencies that will be consulted for a record of environmental consideration as applicable:

- CNMI Division of Environmental Quality (DEQ)
- CNMI Division of Historic Preservation (DHPO)
- CNMI Dept of Land and Natural Resources (DLNR)
- Division of Fish and Wildlife (DFW)
- CNMI Coastal Resources Management Office (CRM)

WaterSMART Questions regarding Environmental and Cultural Resources Compliance:

Question:	Yes / Explanation	No
1. Will the project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)?	Earthmoving will be limited to previously disturbed areas on existing right of way as underground leaks are excavated and repaired and/or meters installed on existing waterlines.	
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?		√
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 project may have.	Possibly. CUC regularly conducts this type of repair work in such areas with inspections and consideration by CNMI Coastal Resources Management Office and DEQ.	
4. When was the water delivery system constructed?	Much of it dates to 1970's or before.	
5. Will the project result in any modification of or effects to, individual features of an irrigation system (e.g., head gates, canals, or flumes)?		√
6. Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places?		√
7. Are there any known archeological sites in the proposed project area?		√
8. Will the project have a disproportionately high and adverse effect on low income or minority populations?		√
9. Will the project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?		√
10. Will the project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?		√

Additional environmental/cultural considerations typical for such projects in the CNMI:

Project Name:	Water Loss Reduction and Energy Saving Project		
Community Served:	Saipan – Island-wide Water System		
CATEX Eligibility:		***CATEX***	***Not CATEX***
Project involves existing drinking water supply systems.		Yes: [X]	No: [ ]
Project involves: (check one or more, as applicable)		Yes:	No:
• Minor upgrading, or minor expansion of system capacity or rehabilitation (including functional replacement) of the existing system and system components, ***OR:***		[X] or	[ ]
• Construction of new minor ancillary facilities adjacent to or on the same property as existing facilities.		[X]	[ ]
Check boxes "yes" or "no" if:		No:	Yes:
• Project involves new or relocated discharges to surface or ground water;		[X]	[ ]
• Project is likely to result in a substantial increase in the volume or the loading of a pollutant(s) to the receiving water;		[X]	[ ]
• Project will provide capacity to serve a population 30% greater than the existing population;		[X]	[ ]
• Project conflicts with CNMI, or other regional growth plan or strategy;		[X]	[ ]
• Project directly or indirectly involves or relates to upgrading or extending infrastructure systems primarily for the purposes of future development		[X]	[ ]
Extraordinary Circumstances:		***CATEX***	***Not CATEX***
Check boxes "yes" or "no" if:			
1. The proposed action is known or expected to have potentially significant environmental impacts on the quality of the human environment either individually or cumulatively over time.		No: [X]	Yes: [ ]
2. The proposed action is known or expected to have disproportionately high and adverse human health or environmental effects on any community, including minority communities, or low-income communities.		No: [X]	Yes: [ ]
3. The proposed action is known or expected to significantly affect federally listed threatened or endangered species or their critical habitat.		No: [X]	Yes: [ ]

4. The proposed action is known or expected to significantly affect national natural landmarks or any property with nationally significant historic, architectural, prehistoric, archeological, or cultural value, including but not limited to, property listed on or eligible for the National Register of Historic Places.	No: [X]	Yes: [ ]
5. The proposed action is known or expected to significantly affect environmentally important natural resource areas such as wetlands, floodplains, significant agricultural lands, aquifer recharge zones, coastal zones, barrier islands, wild and scenic rivers, and significant fish or wildlife habitat.	No: [X]	Yes: [ ]
6. The proposed action is known or expected to cause significant adverse air quality effects.	No: [X]	Yes: [ ]
7. The proposed action is known or expected to have a significant effect on the pattern and type of land use (industrial, commercial, agricultural, recreational, residential) or growth and distribution of population including altering the character of existing residential areas, or may not be consistent with CNMI approved land use plans or federal land management plans.	No: [X]	Yes: [ ]
8. The proposed action is known or expected to cause significant public controversy about a potential environmental impact of the proposed action.	No: [X]	Yes: [ ]
9. The proposed action is known or expected to be associated with providing financial assistance to a federal agency through an interagency agreement for a project that is known or expected to have potentially significant environmental impacts.	No: [X]	Yes: [ ]
10. The proposed action is known or expected to conflict with federal, CNMI or local government, environmental, resource-protection, or land-use laws or regulations.	No: [X]	Yes: [ ]

Section III. Required permits or approvals

CNMI Division of Environmental Quality (DEQ) provides a "One-Stop Permit" arrangement for such projects involving earthmoving in previously disturbed areas. They consult (as applicable) with the agencies below:

- CNMI Division of Historic Preservation (DHPO)
- CNMI Dept of Land and Natural Resources (DLNR)
- Division of Fish and Wildlife (DFW)
- CNMI Coastal Resources Management Office (CRM)
- CNMI Department of Public Works - CNMI Zoning Office (DPW)

Section IV. Letters of Project Support

Mr. Carl Goldstein, US Environmental Protection Agency, Region IX, supports, but unable to send letter in time for submittal may communicate directly with agency.

Section V. Official Resolution

An official resolution has been attached to the filing of this application. (See below)

Section VI. Project Budget

VI. A Funding Plan

The Commonwealth Utilities Corporation will commit $270,000 over the course of the project from general operations to fund 45% this project. CUC will pay the salaries, or wages, including benefits of the 'in-house' labor and expertise used in the various aspects of the project. As 'in-kind' contribution, CUC will commit the use of a company-owned backhoe, trucks, tools, and equipment necessary to accomplish the 'in-house' portions of the project. No allowance is being requested for indirect costs including procurement and accounting, or payroll personnel, contract officer, legal counsel, etc. Total contribution to the project by CUC is $300,000.

FUNDING SOURCES:	% of Project	Amount
Non-Federal Entities (Recipient):		
1. CUC from General Operating Fund	45.0%	$270,000
2. CUC in-kind contribution	5.0%	$30,000
Requested Reclamation Funding:		
Bureau of Reclamation WaterSMART Grant	50.0%	$300,000.00
	TOTAL PROJECT FUNDING:	**$600,000.00**

VI. B Budget Narrative Format

CUC possesses the manpower and expertise to accomplish many of the project objectives and tasks using in-house personnel and equipment to include:

Wages or Salaries including fringe benefits for one Project Manager, one Project Engineer, and the necessary Meter and Repair field personnel. (Explanation regarding unusually low labor costs: Minimum wage in CNMI is only $5.50/hour which is quite low in comparison with US mainland. While field employees and water operators make more than minimum wage, the wages and salaries of this region are considerably less than utilities in the mainland – average approx. $12.00/hr including vacation, holidays, insurance subsidy, FICA and Medicare). Included in the capable in-house expertise, is our grants department who will administer this grant and ensure CUC complies with all administrative and programmatic conditions, including accurate accounting and reporting to the Bureau of Reclamation. Total estimated 'in-house' wages and salaries: $102,400 for the project.

Key Personnel: Name, title, salary or wage (pre-fringe benefits), percentage of time

- Project Manager: John Riegel (CUC Chief Engineer)
  - $61/hr ~ 8% of time on this project.
- Project Engineer: Joel Hoepner (Operations Engineer)
  - $24/hr ~ 20% of time
- Meter Crew Leader: Glenn Dikito (Customer Service/Meters Manager)
  - $18/hr ~ 20% of time
- Repair Crew Leader: Bernard Keremius (Acting Water Division Manager)
  - $22/hr ~ 10% of time
- Grant Administration: Greg Burkett and Joanne Paraiso (Grants Specialists)
  - $23/hr ~ 6% of time

CUC will commit the use of one company-owned backhoe and a minimum of one truck for the accomplishment of this project. Estimated minimum value of use and maintenance of equipment: $30,000.

Water meters as specified in the proposal above can be procured and shipped to Saipan at the costs listed. ($125,000)

Based on similar leak detection and repair projects, we estimate the cost of repair parts (pipe, fittings, valves, hydrants, etc) to be $85,000.

As there are entire villages in which there are known sizeable water losses to leaks in deteriorated piping and fittings, we propose to hire a leak detection contractor to conduct the majority of the leak detection work. The added expertise and more modern and professional detection equipment will prove valuable in successfully locating the sources of such water losses. Most or all of the resulting repairs will likely be done using 'in-house' repair crews.

As CUC does not have any SCADA systems at present, professional assistance will be necessary to evaluate and design a pilot SCADA system to monitor and control approximately ten storage facilities and one associated nearby well. As this expertise does not exist in-house or even in the region the solicitation of a consultant will necessarily include the US mainland. The consultant fees are estimated to be $48,000.

Upon completion of the work done by the consultant, it is anticipated that we will be able to procure materials and installation of a small pilot SCADA system, which will assist CUC in managing our water supply better, and will begin a process leading to a much more comprehensive and robust SCADA system in the future as funds become available. This technological advancement is included in the stipulated order and in the Master Plan for Water and Wastewater that is currently being developed by an engineering firm, as funded by OIA and EPA. Combined cost including contingency for unknowns: $252,225. An allowance has been included for the cost of environment and regulatory compliance.

Total estimated cost of project: $600,000

VI. C. Budget Form

2013 WaterSMART Project Budget Proposal					
Item Description	Unit Cost	Quantity	Unit	Total Cost	
Salaries, Wages & Benefits (Benefits include: Vacation; Holidays; FICA; Medicare; Medical = +30% labor factor)					
Project Manager	$ 90.00	238	Hr	$	21,500.00
Project Engineer	$ 31.00	694	Hr	$	21,500.00
Meter Crew (ave)	$ 12.00	2000	MH	$	24,000.00
Repair Crew (ave)	$ 12.00	1700	MH	$	20,400.00
				$	**87,400.00**
Equipment					
Backhoe	$ 100.00	200	Day	$	20,000.00
Truck	$ 50.00	200	Day	$	10,000.00
				$	**30,000.00**
Materials & Supplies					
Meters	$ 125.00	1000	EA	$	125,000.00
Repair Parts	$ 85,000.00	1	LS	$	85,000.00
				$	**210,000.00**
Contractual Construction					
Leak Detection	$ 100.00	1000	Hr	$	100,000.00
SCADA Consultant	$ 200.00	240	Hr	$	48,000.00
SCADA Installation	$ 4,250.00	20	EA	$	85,000.00
	Contingencies			$	19,225.00
				$	**252,225.00**
Other					
Grant Administration: (500 hr @ $30/hr)				$	15,000.00
Environmental and Regulatory Compliance				$	5,375.00
				$	**20,375.00**
	Total Direct Cost			$	600,000.00
	Total Project Cost			**$**	**600,000.00**

Engineering Certification

Signature: John Riegel – CUC Chief Engineer — Date: 1/18/13

Approved by:

Alan W. Fletcher
Acting CUC Executive Director — Date: 1/18/13

Attachments:
- S424
- S424 B
- S424 D
- Official Resolution
- Calculations by 'Economist.com' (Rate Consultant)

Commonwealth Utilities Corporation
Office of the Executive Director

RESOLUTION

January 17, 2013

U.S. Department of the Interior
Policy and Administration
Bureau of Reclamation
WaterSMART – Water and Energy Efficiency Grant FY 2013

Ref. No. 01-13-028

Re: Official Resolution

As acting Executive Director, having legal authority to enter into a financial assistance agreement with Federal agencies, including the DOI- Bureau of Reclamation, I hereby certify the following:

I am authorized to commit the Commonwealth Utilities Corporation to the financial and legal obligations associated with the receipt of WaterSMART Grant;

I have reviewed and support the application submitted;

That the Commonwealth Utilities Corporation has the financial capability and commitment to provide the $300,000 in matching funds as cash and in-kind contribution, as specified in the funding plan of attached proposal.

The Commonwealth Utilities Corporation will work with Reclamation to meet the established deadlines for entering into a cooperative agreement.

Sincerely,

Alan Fletcher
Acting Executive Director

FUNDING SOURCES:	% of Project	Amount
Non-Federal Entities (Recipient):		
1. CUC from General Operating Fund	45.0%	$270,000.00
2. CUC in-kind contribution	5.0%	$30,000.00
Requested Reclamation Funding:		
Bureau of Reclamation WaterSMART Grant	50.0%	$300,000.00
	TOTAL PROJECT FUNDING:	**$600,000.00**

Cc: CFO, CUC Grants Department

Dandan, P.O. Box 501220
Saipan, MP 96950
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Economic and Financial Consulting

MEMORANDUM

Date: January 4, 2013

To: Charles Warren

From: Dan V. Jackson

Re: January 2013 WEC/WWEC Calculation

Per your request, we have recalculated the Water Electric Charge ("WEC") and Wastewater Electric Charge ("WWEC") based on the calculated change in CUC's LEAC rate. As you are aware, CUC has just decreased its LEAC from $0.31212/kWh to $0.29751/kWh, a decrease of approximately 4.7%.

We have utilized the following critical assumptions in preparing these calculations:

1) CUC staff has provided us with an updated "Attachment C" which lists water and wastewater accounts, revenues and consumption. The Attachment C presents data through September 2012. We have chosen to update our water and wastewater volume forecast from the amounts developed during our last WWEC and WWEC calculations in September 2012. The new estimated water annual volume consumed by ratepayers is forecast to be 1,349,031,266 gallons, a decrease of 0.14% from the prior total. The wastewater volume is forecast to be 825,196,114 gallons, an increase of 0.34% from the prior total. The lower water volume will serve to nominally mitigate the WEC decrease, while the higher wastewater volume will magnify the WWEC decrease.

2) We are including regulatory and technical support expenses of $2,500 for calculation of the WEC and WWEC.

3) We are using staff's estimate of 161 water electric accounts and 40 wastewater electric accounts.

The key input to the WEC and WWEC calculations is the estimated annual electric consumption by each division. These estimates have been revised significantly over the past several months as more water and wastewater accounts are metered. As revised numbers are input into the calculation, the resulting rates are subject to potentially significant change.

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This is illustrated in **Chart 1**. The chart shows that we are continuing to use the prior estimate of 11,673,137 kWh for water and 3,642,920 kWh for wastewater.

As the usage numbers are refined further in future months, we expect there to be additional adjustments required in the WEC and WWEC.

Chart 1

COMMONWEALTH UTILITIES CORPORATION
HISTORICAL WEC/WWEC CALCULATIONS

		Water	Wastewater
		Annual Electric Usage (kWh)	
Jan-12	Implemented	10,617,591	5,113,238
Apr-12	Implemented	10,217,157	5,210,170
Jun-12	Implemented	12,492,144	4,920,344
Jul-12	Implemented	11,673,137	3,642,920
Aug-12	Implemented	11,673,137	3,642,920
Sep-12	Implemented	11,673,137	3,642,920
Jan-13	Proposed	11,673,137	3,642,920
		Charge Per 1,000 Gallons	
Jan-12	Implemented	$ 2.90	$ 3.00
Apr-12	Implemented	3.15	2.97
Jun-12	Implemented	3.54	2.71
Jul-12	Implemented	3.05	1.86
Aug-12	Implemented	3.36	1.77
Sep-12	Implemented	3.66	1.90
Jan-13	Proposed	3.54	1.83

Attachment 1 presents the revised WEC and WWEC calculations. As shown in Attachment 1, we estimate that as of January 2013 the WEC should be set at **$3.54** per 1,000 gallons and the WWEC should be set at **$1.83** per 1,000 gallons.

Please also note that the percentage decrease of the WEC and WWEC is not as high as the LEAC decrease, because the WEC and WWEC are partly derived from a base charge which has not changed. This will reduce the percentage impact of the WEC and WWEC.

Please call me if you have any questions.

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