

Vernon Irrigation Company

WaterSMART Grants: Small-Scale
Water Efficiency Projects - FY 2021
R21AS00257

PROJECT TITLE:

Vernon Irrigation Company
Secondary Water Metering Project



APPLICANT:

Vernon Irrigation Company
P.O. Box 121, Vernon, UT 84080

PROJECT MANAGER:

Brian Fredrickson
P.O. Box 121, Vernon, UT 84080
(801) 971-2292
brian@bonnevillemachine.com

March 18, 2021

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Technical Proposal and Evaluation Criteria

1. Executive Summary

Applicant Info

Date: March 18, 2021

Applicant Name: Vernon Irrigation Company

City, County, State: Vernon, Tooele County, Utah

Applicant Type: Category A

Project Manager:

Brian Fredrickson

Vernon Irrigation Company

P.O. Box, 121, Vernon, UT 84080

801-971-2292

brian@bonnevillemachine.com

Project Funding Request: \$23,905; Total Project Cost: \$47,810.

Project Summary

Vernon Irrigation Company Secondary Water Metering Project will install 22 secondary water meters at existing unmetered connections to the Company's pressurized irrigation system. The Vernon Irrigation Company (Company) will have a qualified contractor install ultrasonic water meters, cellular endpoints, and lockable ball valves at all of its existing residential, commercial, institutional, and industrial customers. Data from the meters will connect through a cellular network to a metering analytics software suite and provide Advanced Metering Infrastructure (AMI) benefits. The project will include conservation outreach, promote water conservation, and identify leaks and peak usage so that the Company can better manage its water supply and achieve its best management priorities.

The project contributes to the Bureau of Reclamation's mission of managing and protecting water resources and the FOA's objective of using technology to increase water reliability. The project contributes to the Bureau of Reclamation's mission of managing and protecting water resources and the FOA's objective of using technology to increase water reliability.

The Company owns and operates the 560-acre-foot Vernon Reservoir constructed in 1972 as well as the distribution system for delivery of pressurized irrigation water to its shareholders.

Schedule

The Company intends to begin installation as soon as practical after grant award and execution of a financial assistance agreement. The project schedule anticipates award notification in September, a signed agreement in December, installation March 2022 through May 2022, and final reporting in June 2022.

Federal Facility

This project does not impact any federal facilities.

2. Project Location

The proposed project will take place within or near the city of Vernon located in Tooele County, Utah 53 miles south, southwest of the Salt Lake City Airport.



The proposed project will install meters at the homes, businesses, and institutions within the Company's service area generally depicted in the following image at a latitude of 40.0941° and longitude of -112.4335°



3. Project Description

Describe the technical aspects of the project including the materials, equipment, and work to be accomplished as well as the approach used to complete the project.

Overview

The Company proposes to install 22 Badger Ultrasonic water meters connected to the Beacon Advanced Meter Analytics System through cellular communication endpoints. The installations will be at all of the Company's existing, non-agricultural connections. The meters will be installed along the existing underground service lines.

Problem being Addressed

Utah's population is expected to double by 2060, but its water supply will not. Conservation is a vital first step towards meeting future water needs. More than 60% of Utah's drinking water is used on outdoor landscapes. In 2000, Utah established a statewide goal to reduce water use by 25% per person by 2025. In 2019, the State of Utah set a regional water conservation goal of 20% reduction in water usage between 2015 and 2030¹. The Company recognizes that water conservation and efficient irrigation system management is an imperative and as a result has established a goal and allocated funding to begin metering all its pressurized irrigation connections that do not serve agricultural users.

In response to projected future water shortages, the Utah legislature in 2019 passed State Bill 52² which requires all pressurized secondary water providers to meter all non-agricultural water usage for new services designed after April 1, 2020. The Company is already in compliance with this requirement. Additionally, SB 52 requires providers to develop and submit a plan for metering existing pressurized irrigation connections and to report progress annually. The Company, through this Project, intends to comply with the intent and will install meters at all existing non-agricultural customer connections.

Without metering, the Company's water users often do not pay attention to their landscape water usage and may significantly overwater. In some cases, they use more than their existing

¹ <https://water.utah.gov/goals/>

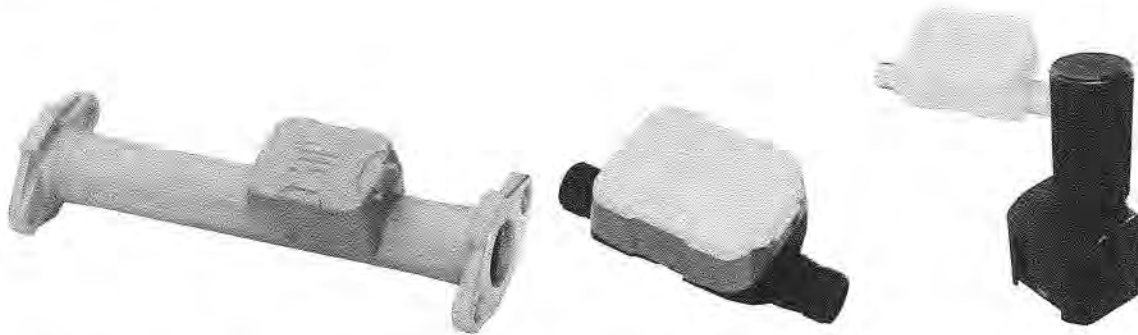
² <https://le.utah.gov/~2019/bills/static/SB0052.html>

water rights and may have undetected leaks in their irrigation systems. Without a measurement system, there is reduced incentive to conserve water and to install water conservation equipment such as smart, internet connected sprinkler controllers. There is also no basis for the Company to bill for over usage or to develop a pricing structure that encourages water conservation.

Technical Description

The Company proposes to install Badger Ultrasonic Type E water meters with Beacon registers and transmitters. This meter uses solid state technology in a compact, totally encapsulated, fully submersible housing with no moving parts. The meter has an LCD display and records consumption, rate of flow, reverse-flow indication, and alarms. Long-term sustained accuracy is within +/-1.5%.

Pictured below are Badger Ultrasonic Type E meters in diameters ranging from 3/4" to 2". Also depicted is a black cellular endpoint used to automatically transmit meter data through existing cellular networks.



In addition to the meter and cellular endpoint, metering assemblies will include locking brass ball valves and brass coupling meter nuts and the assembly will be installed in suitable boxes installed flush with the existing landscaping. All reasonable efforts will be made to minimize the disturbance to existing landscaping and to restore the site as best as possible to pre-installation conditions.



The meters will be connected via ORION Cellular LTE-M endpoints to the BEACON Advanced Metering Analytics software suite. This approach leverages existing cellular networks to provide Advanced Metering Infrastructure (AMI) benefits without the need for fixed infrastructure investment and maintenance³. Homeowners will be able to login to the system and track their daily water usage.



4. Evaluation Criteria

Evaluation Criterion A- Project Benefits

Describe the expected benefits and outcomes of implementing the proposed project.

What are the benefits to the applicant's water supply delivery system? The proposed project will provide several benefits to the Company's secondary water system including:

- The metering system will help identify water losses from leaks and promote conservation both of which will reduce stress on the delivery system and increase reliability.
- Automated meter reading with direct customer access to their hourly water usage through an internet portal, will improve customer satisfaction, increase conservation, and reduce staff time.
- Hourly and daily water demand data can identify demand peaks and allow the Company to evaluate the adequacy of its infrastructure and identify future infrastructure

³ <https://www.badgermeter.com/resources/f1722ce1-8a32-4488-a7b8-c0fa0ce4fe0f/water%20utility%20solutions%20brochure%20inc-br-00625-en.pdf/>

requirements.

- The hourly water demand data will also allow the Company to work with customers to manage and reduce demand peaks in order to increase system reliability and delay or avoid costly capital improvements.

Extent to which the proposed project improves overall water supply reliability: By better understanding the peak hourly and daily demands of existing customers, the Company will be better able to monitor and optimize its existing infrastructure and thereby increase reliability. Additionally, the Company will be better able to identify potential future constraints and more effectively plan infrastructure improvements to maintain and enhance system reliability.

The expected geographic scope benefits from the proposed project: The Company's pressurized secondary water supply serves approximately 22 customers. The proposed project will install water meters at all pressurized residential, commercial, industrial, and institutional connections and is likely to increase water conservation by 8-20%. Water conservation and usage data will help reduce demand and increase system reliability.

Extent to which the proposed project will increase collaboration and information sharing among water managers in the region: The Company will be happy to share usage information and lessons learned from their meter installation project with other water managers within the region. Additionally, the Company will make water usage data available to each customer so that they can become better water managers over their own consumption.

Any anticipated positive impacts/benefits to local sectors and economies: The project will benefit the local economy by increasing the reliability of the water supply and through water conservation. Without water conservation, Utah as a whole could face economic growth inhibiting water shortages by 2040⁴.

Extent to which the project will complement work done in coordination with NRCS in the area (e.g., with a direct connection to the Company's water supply). The Company does not have a direct connection to NRCS assistance through EQIP or other programs. It will, however, increase irrigation water conservation and complement on-farm conservation programs.

Evaluation Criterion B- Planning Efforts Supporting the Project

Describe how your project is supported by an existing planning effort.

Does the proposed project implement a goal or address a need or problem identified in the existing planning effort? The Company's strategic planning efforts identified five factors that led towards the Company's decision to implement a secondary water metering program:

- Water Conservation. The Company adopted the State of Utah's water conservation goal

⁴ conservationgardenpark.org

of 25% by 2025.

- **Supply and System Adequacy.** While Vernon is a rural area, potential future residential development within the Company boundaries could potentially increase water usage and stress the water supply and distribution infrastructure.
- **State Bill 52.** The passage of SB 52 also requires the Company to meter all new customers and develop a plan for metering its existing customers.
- **Fair and Accurate Billing.** The Company identified a need to measure secondary water usage so that customers do not exceed their water rights and are being billed fairly.
- **Meter Availability.** Metering technology with no moving parts and a 20-year batter life is now available for reasonable pricing.

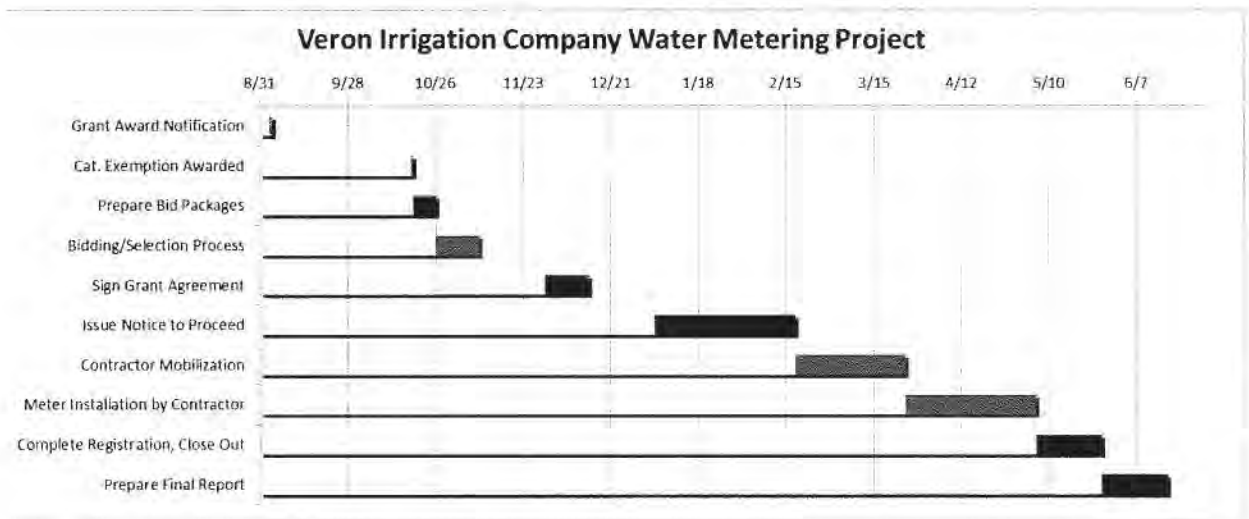
Based on these factors, the Company committed to a metering implementation plan and budgeted requisite funds. The Company contracted with Water Metering Services to assist with planning and implementation. The proposed Project and associated grand funding along with the Company’s matching funds will be used to meter all of the Company’s pressurized meter connections.

Explain how the proposed project has been determined as a priority in the existing planning effort as opposed to other potential projects/measures. Based on the five factors listed above, The Company determined that a metering program would increase water conservation, water usage information, user engagement, system reliability, and the time before system upgrades are required. As a result, metering was determined to be the Company’s top priority.

Evaluation Criterion C- Project Implementation

Describe the implementation plan for the proposed project. Please include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates: The following project schedule outlines the timing of the major tasks and milestones for the proposed project.

Task Name	Start	End	Duration (days)
Grant Award Notification	9/3/2021	9/4/2021	1
Cat. Exemption Awarded	10/18/2021	10/19/2021	1
Prepare Bid Packages	10/19/2021	10/26/2021	7
Bidding/Selection Process	10/26/2021	11/9/2021	14
Sign Grant Agreement	11/30/2021	12/14/2021	14
Issue Notice to Proceed	1/4/2022	2/18/2022	45
Contractor Mobilization	2/18/2022	3/25/2022	35
Meter Installation by Contractor	3/25/2022	5/6/2022	42
Complete Registration, Close Out	5/6/2022	5/27/2022	21
Prepare Final Report	5/27/2022	6/17/2022	21



Before installation can begin, an Environmental Document will be prepared in collaboration with Reclamation’s Provo Area Office. Installation can begin after a Categorical Exclusion is received. A competitive bid will be conducted, and a qualified contractor selected and mobilized to perform the work. The District will provide affected homeowners with information about the project, the function of the meters, the installation process, and the importance of water conservation. The contractor will also be required to keep residents informed during the installation process and of the timing of secondary water outages as required during construction.

The District’s intention is to begin the installation process as soon possible given the timing of the grant award and the duration of the environmental review to receive a Categorical Exclusion. As indicated in the preceding schedule, installation is anticipated in the spring of 2022 with final reporting to Reclamation and project close-out in the June 2022.

Describe any permits that will be required, along with the process for obtaining such permits: The proposed work will be located within existing right of way and along existing residential service lines. No permit will be required for implementation of this project.

Identify and describe any engineering or design work performed specifically in support of the proposed project. No engineering or design work will be performed specifically in support of this project. The bid documents and specifications will be prepared by qualified Company staff.

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

Describe the timeline for completion of environment and cultural compliance. Was the timeline for completion of environmental and cultural resource compliance discussed with the local Reclamation office? The Company does not anticipate significant environmental and regulatory costs relating to this project. Installation work will only occur on already-developed

properties. No impacts to historic water conveyance structures, soils, air quality, animal habitat, or endangered species are expected. Peter Crookston at the Provo, UT Reclamation office was contacted by telephone and confirmed that almost all residential meter installation projects are able to receive a Categorical Exclusion.

Evaluation Criterion D- Nexus to Reclamation

Is the proposed project connected to a Reclamation project or activity? If so, how? The proposed project closely aligns with Reclamation Priority #4 Addresses Ongoing Drought by measuring, reporting usage, and encouraging irrigation water users to conserve water.

Does the applicant receive Reclamation project water? The Company does not currently receive Reclamation project water.

Is the project on Reclamation project lands or involving Reclamation facilities? The Project is not known to on Reclamation project lands or involve Reclamation facilities.

Is the project in the same basin as a Reclamation project or activity The Project is not known to be in a basin with a Reclamation project or activity.

Will the proposed work contribute water to a basin where a Reclamation project is located? The Project is not expected to contribute water to a basin where a Reclamation project is located.

Will the project benefit any tribe(s)? The Project is not anticipated to benefit any tribe.

5. Project Budget

Funding Plan and Letters of Commitment

1. *Please identify the sources of the non-Federal cost share contribution for the project.*
The Company has budgeted and will fund all non-Federal contributions entirely from the Company’s operating revenues and reserves. The Company Board has approved a budget for meter installation of \$25,000. There are no other sources of funding supporting this project.
2. *Please identify whether the budget proposal includes any project costs that have been or may be incurred prior to award.*
The budget does not include any pre-application costs or costs to be incurred prior to award.

Budget Proposal

Table 1. - Total Project Cost Table

SOURCE	AMOUNT	% of Costs
Costs to be reimbursed with the requested Federal funding	\$23,905.00	50.0%
Costs to be paid by the applicant	\$23,905.00	50.0%
Value of third-party contributions	\$0.00	0.0%
TOTAL PROJECT COST	\$47,810.00	100.0%

Table 2. - Budget Proposal

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	\$/Unit	Quantity		
Salaries and Wages	\$0.00	-	-	\$0.00
Fringe Benefits	\$0.00	-	-	\$0.00
Travel	\$0.00	-	-	\$0.00
Equipment	\$0.00	-	-	\$0.00
Supplies and Materials	\$0.00	-	-	\$0.00
Contractual/Construction				
Meter Installation Contract	\$39,575.00	1.00	Lump Sum	\$39,575.00
Const. Mgmt & Inspection	\$3,958.00	1.00	Lump Sum	\$3,958.00
Other				
Environmental Compliance	\$2,000.00	1	-	\$2,000.00
TOTAL DIRECT COSTS				\$45,533.00
Indirect Costs				
Administrative Expense	5.00%			\$2,277.00
TOTAL ESTIMATED PROJECT COSTS				\$47,810.00

Budget Narrative

Salaries & Wages

No Company Salaries or Wages will be included.

Fringe Benefits

No fringe benefits will be required.

Travel

No travel will be required.

Equipment

Installation equipment will be supplied by the selected contractor and is included as a cost in the Contractual /Construction portion of the project.

Materials and Supplies

Materials and Supplies are included as a cost in the Contractual /Construction portion of the project and will be procured by the contractor.

Contractual

The Company has secured an estimate from a qualified, licensed, and insured contractor to furnish all necessary labor, parts, and equipment to meet project specifications and provide a one-year installation warranty for \$39,575. This is based on per meter pricing of \$1,325 for 1" meters, \$2,250 for 1.5" meters, and \$2,850 for 2" meters. The Company will contract for project management and inspection services for the proposed Project with a budget allocation of \$3,958 which is 10% of the installation contract.

Third-Party In-Kind Contributions
N/A.

Environmental and Regulatory Compliance Costs

As the meters will primarily be installed in lawns adjacent to existing Company supply lines and valve, the Company does not foresee significant environmental or regulatory costs. The compliance budget is estimated at \$2,000 which is 4.2% of Project costs.

Reporting

The Indirect Costs budget will cover the Company's staff time to prepare the reports.

Other Expenses

No other expenses will be part of the project.

Indirect Costs

The administrative and reporting support required for the Project will be provided on a contract basis and is budgeted is \$2,277 or 5.0% of total direct costs.

6. Environmental and Cultural Resources Compliance

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 project will not impact the surrounding environment. Excavation work is typically less than 24" deep and approximately six square feet per installation. The work will be performed in a manner that minimizes impact to the existing landscaping and the surrounding environment. As almost all excavations are within watered landscaping, dust impact will be minimal. No animal habitats will be negatively impacted.

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?*
No endangered species are impacted by this 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.*
No wetlands are impacted by this project.

4. *When was the water delivery system constructed?*
The water delivery system was constructed in 1975. Various improvements and upgrades have been made to the system over the decades to it meets the needs of the Company and its shareholders.

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)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.*
The project will not modify or effect the irrigation system components. The proposed

work will only add meters where individual residences connect to the distribution system.

6. *Are any buildings, structures, or features in the irrigation Company 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.*

No. The Company is not aware of any buildings, structures or features in the irrigation Company that are listed or eligible for listing on the National Register of Historic Places. None of the residences where meters will be installed are listed or eligible for listing on the National Register of Historic Places.

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

No.

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

No.

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

No.

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?*

No.

7. Required Permits or Approvals

The proposed work will be located within existing right of way and along existing residential service lines. No permits or approvals will be required for the project.

8. Official Resolution

An official resolution meeting the FOA requirements was adopted during the Company's March 2021 Board meeting and is attached in Appendix E.

9. Unique Entity Identifier and System for Award Management

The Company's Unique Entity Identifier (i.e. DUNS) is 080643302. The Company has a SAM registration and is in the process of securing a CAGE Code which will be forwarded when available. The Company will maintain an active SAM registration throughout the duration of the Project.

10. Attachments

Attachment A. Map of the Company's Service Area



RESOLUTION

A RESOLUTION OF THE VERNON IRRIGATION COMPANY
SUPPORTING PARTICIPATION IN THE BUREAU OF RECLAMATION
WATERSMART GRANTS: SMALL-SCALE WATER EFFICIENCY PROJECTS
FY 2021 R21AS00257

WHEREAS, the Board of Directors of the Vernon Irrigation Company
("Company") deems it to be in the best interest of the Company to
participate in the WaterSMART Grant Programs; and

NOW, THEREFORE, BE IT RESOLVED THAT:

1. The Company supports a proposal for the WaterSMART Small-Scale Water Efficiency Projects FY 2021 for the VERNON IRRIGATION COMPANY SECONDARY WATER METERING PROJECT ("Project");
2. The Company is capable of providing the amount of funding and/or in-kind contributions specified in the attached Funding Plan for the Project;
3. If selected for a WaterSMART Grant, the Company will work with the Bureau of Reclamation to meet established deadlines for entering into a cooperative agreement; and
4. The Project Manager, Brian Fredrickson, is authorized to execute all necessary forms on behalf of the Company.

PASSED AND ADOPTED this 11th day of March 2021, at a meeting of the Board of Directors of the Vernon Irrigation Company, by the following vote:

AYES: 5

NOES: None

ABSENT: None

ABSTAIN: None

VERNON IRRIGATION COMPANY



Brian Fredrickson, President

ATTEST:


Secretary