RECLAMATION

Managing Water in the West

Funding Opportunity Announcement No. BOR-DO-18-F006

WaterSMART Grants: Water and Energy Efficiency Grants for Fiscal Year 2018



U.S. Department of the Interior
Bureau of Reclamation
Policy and Administration
Denver, Colorado

March 2018

Mission Statements

The U.S. Department of the Interior protects America's natural resources and heritage, honors our cultures and tribal communities, and supplies the energy to power our future.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Cover photo: Fresno Irrigation District's Gould Canal-Friant-Kern Canal Intertie Project in California, which was a FY 2016 Water and Energy Efficiency Grant project. Photo Courtesy of Fresno Irrigation District.

Synopsis

Federal Agency Name:	Department of the Interior, Bureau of Reclamation, Policy and Administration
Funding Opportunity Title:	WaterSMART: Water and Energy Efficiency Grants for fiscal year (FY) 2018
Announcement Type:	Funding Opportunity Announcement (FOA)
Funding Opportunity Number:	BOR-DO-18-F006
Catalog of Federal Domestic Assistance (CFDA) Number:	15.507
Dates: (See FOA Sec. D.4)	Application due date: Thursday, May 10, 2018 4:00 p.m. Mountain Daylight Time
Eligible Applicants: (See FOA Sec. C.1)	States, Indian tribes, irrigation districts, water districts, or other organizations with water or power delivery authority located in the Western United States or United States Territories as identified in the Reclamation Act of June 17, 1902, as amended
Recipient Cost Share: (See FOA Sec. C.2)	50 percent or more of project costs
Federal Funding Amount: (See FOA Sec. B.1)	**Funding Group I:** Up to $300,000 per agreement **Funding Group II:** Up to $1,000,000 per agreement
Estimated Number of Agreements to be Awarded: (See FOA Sec. B.1)	The President's FY 2018 budget includes a request for $23.4 million for WaterSMART Grants, including approximately $16 million for this FOA. Reclamation will determine the amount of funding available for award for this WaterSMART Grants FOA once final FY 2018 appropriations have been made. Please note that approximately $1.7 million of FY 2018 WaterSMART Grants funding, if available, will be allocated for additional phases of projects selected through previous FOAs. Any awards are subject to a determination by Reclamation that FY 2018 appropriations are available.

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Application Checklist

The following table contains a summary of the information that you are required to submit with your application.

√	What to submit	Required content	Form or format	When to submit
	Mandatory Federal Forms: Application for Federal Financial Assistance Budget Information Assurances Disclosure of Lobbying Activities	See Sec. D.2.2.1	SF-424, SF-424A, SF-424B, SF-424C, SF-424D and SF-LLL forms may be obtained at www.grants.gov/web/grants/forms/sf-424-family.html	*
	Title page	See Sec. D.2.2.2	Page 15	*
	Table of contents	See Sec. D.2.2.3	Page 15	*
	Technical proposal:			*
	Executive summary	See Sec. D.2.2.4	Page 15	*
	Background data	See Sec. D.2.2.4	Page 16	*
	Project description	See Sec. D.2.2.4	Page 16	*
	Evaluation criteria	See Sec. E.1	Page 31	*
	Project Budget:			*
	Funding plan	See Sec. D.2.2.5	Page 17	*
	Budget proposal	See Sec. D.2.2.5	Page 19	*
	Budget narrative	See Sec. D.2.2.5	Page 20	*
	Environmental and cultural resources compliance	See Sec. D.2.2.6	Page 24	*
	Required permits or approvals	See Sec. D.2.2.6	Page 25	*
	Letters of support	See Sec. D.2.2.8	Page 25	*
	Official Resolutions	See Sec. D.2.2.9	Page 26	**
	Unique Entity Identifier and System for Award Management	See Sec. D.3	Page 26	***

* Submit materials with your application.

** Document should be submitted with your application; however, please refer to the applicable section of the FOA for extended submission date.

*** Should be completed prior to the application deadline; however, please refer to the applicable section of the FOA for extended completion date.

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Acronyms and Abbreviations

ASAP	Automated Standard Application for Payments
ARC	Application Review Committee
CE	Categorical Exclusion
CEC	Categorical Exclusion Checklist
CFDA	Catalog of Federal Domestic Assistance
CFR	Code of Federal Regulations
CWA	Clean Water Act
CWMP	Cooperative Watershed Management Program
Department	U.S. Department of the Interior
DUNS	Data Universal Number System
EA	Environmental Assessment
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FAPIIS	Federal Award Performance Integrity Information System
FAQ	Frequently Asked Question
FERC	Federal Energy Regulatory Commission
FOA	Funding Opportunity Announcement
FONSI	Finding of No Significant Impact
FY	fiscal year
GO	Grants Officer
LOPP	Lease of Power Privilege
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
OM&R	operations, maintenance, and replacement
P.L.	Public Law
Reclamation	Bureau of Reclamation
ROD	Record of Decision
SAM	System of Award Management
U.S.C.	United States Code
USFWS	U.S. Fish and Wildlife Service
WaterSMART	Sustain and Manage America’s Resources for Tomorrow

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Section A. Funding Opportunity Description

A.1. Program Information

Through WaterSMART, the Bureau of Reclamation (Reclamation) leverages Federal and non-Federal funding to work cooperatively with states, tribes, and local entities as they plan for and implement actions to increase water supply reliability through investments and attention to local water conflicts. Working together with our stakeholders, WaterSMART provides support for the Department of the Interior's priorities, including the following:

- Creating a conservation stewardship legacy
- Utilizing our natural resources
- Restoring trust with local communities
- Striking a regulatory balance
- Modernizing our infrastructure

Through Water and Energy Efficiency Grants, Reclamation provides assistance to states, tribes, irrigation districts, water districts, and other entities with water or power delivery authority to undertake projects that result in quantifiable and sustained water savings and support broader water reliability benefits. Water and Energy Efficiency Grants are a component of Reclamation's WaterSMART Grants Program, which also includes Water Marketing Strategy Grants and Small-Scale Water Efficiency Projects. For further information on the WaterSMART Grants Program, please see www.usbr.gov/watersmart/grants.html.

This Water and Energy Efficiency Grants funding opportunity announcement (FOA) provides funding for projects that result in quantifiable water savings and support broader water reliability benefits. These projects conserve and use water more efficiently; increase the production of hydropower; mitigate conflict risk in areas at a high risk of future water conflict; and accomplish other benefits that contribute to water supply reliability in the western United States.

A list of Frequently Asked Questions (FAQ) about WaterSMART and this FOA can be found online at www.usbr.gov/WaterSMART/weeg/faq.html. The list of FAQs will be updated periodically during the application period. For further information on WaterSMART Grants, please see www.usbr.gov/watersmart/grants.html. For further information on the WaterSMART Program, please see www.usbr.gov/WaterSMART.

A.2. Objective of this Funding Opportunity Announcement

The objective of this FOA is to invite states, Indian tribes, irrigation districts, water districts, and other organizations with water or power delivery authority to leverage their money and resources by cost sharing with Reclamation on projects that seek to conserve and use water more efficiently; increase the production of hydropower; mitigate conflict risk in areas at a high risk of future water conflict; enable farmers to make additional on-farm improvements in the future, including improvements that may be eligible for Natural Resources Conservation Service (NRCS) funding; and accomplish other benefits that contribute to water supply reliability in the western United States.

A.3. Statutory Authority

This FOA is issued under the authority of Section 9504(a) of the Secure Water Act, Subtitle F of Title IX of the Omnibus Public Land Management Act of 2009, Public Law 111-11 (42 United States Code 10364).

A.4. Other Related Funding Opportunities

Through WaterSMART Grants, Reclamation also provides other funding opportunities. The **Small-Scale Water Efficiency Projects** provides funding for small-scale water management projects (up to $75,000 in Federal funding for each project) that have been identified through previous planning efforts. Reclamation has developed a streamlined selection and review process to reflect the small-scale nature of these projects.

In addition, **Water Marketing Strategy Grants** provide meaningful support for entities exploring actions that can be taken to develop or facilitate water marketing. Under this funding opportunity applicants will be invited to conduct planning activities to develop a water marketing strategy to establish or expand water markets or water marketing transactions.

Reclamation provides funding for water management projects through several other programs under WaterSMART. Through the **Drought Response Program**, Reclamation provides funding to help build resilience to drought. Through Drought Contingency Planning, Reclamation supports the development of drought contingency plans with participation from a diverse set of stakeholders. Reclamation also provides funding for Drought Resiliency Projects that increase water supply flexibility and improve water management to build long term resilience to drought and are supported by an existing drought contingency plan.

In addition, through the **Cooperative Watershed Management Program (CWMP)**, Reclamation provides funding to watershed groups to encourage

diverse stakeholders to form local solutions to address their watershed management needs. Reclamation provides funding through Phase I of the CWMP for watershed group development, restoration planning, and watershed management project design and through Phase II for the implementation of watershed management projects.

For information on the timing for these FOAs, please visit the WaterSMART Program website: www.usbr.gov/watersmart/index.html.

A.5. Collaboration with the Natural Resources Conservation Service

Reclamation and the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) are collaborating to align program resources in areas of the Western United States where our mission areas overlap (17 Western States), to improve the impact of the agencies' respective drought resiliency and water efficiency investments. In 2011, NRCS and Reclamation began efforts to coordinate water conservation activities in California. Beginning in 2012, Reclamation made changes to WaterSMART Water and Energy Efficiency Grants to support similar collaboration on a West-wide basis. Applicants under the WaterSMART Grants program receive additional consideration in the evaluation process for delivery system improvements that complement on-farm improvements supported by NRCS such as through their Environmental Quality Incentives Program (EQIP). Contingent on available appropriations, NRCS provides dedicated EQIP funding to support on-farm water efficiency improvements by producers served by water delivery infrastructure improved through a WaterSMART Grant. Also in FY 2017, Reclamation and NRCS have begun working together to expand this partnership to include collaboration on a broader range of activities, including projects funded through this FOA.

Please note that on-farm improvements themselves are not eligible activities for funding under this FOA. NRCS will have a separate application process for the on-farm components of selected projects.

Under this funding opportunity announcement, consideration will be given under *Section E.1.2. Evaluation Criterion E—Complementing Future On-Farm Irrigation Improvements* for proposals that describe on-farm efficiency work that is currently being completed or is anticipated to be completed in collaboration with NRCS in the area (e.g., with a direct connection to the district's water supply). Please contact your state NRCS office for more information regarding NRCS assistance. You can find the contact information for your state NRCS office on the USDA's website, www.nrcs.usda.gov/wps/portal/nrcs/main/national/contact/states/.

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Section B. Award Information

B.1. Total Project Funding

The President's FY 2018 budget includes a request for $23.4 million for WaterSMART Grants, including approximately $16 million to be made available through this funding opportunity. Reclamation will determine the final amount of funding available for award for this WaterSMART Grants FOA once final FY 2018 appropriations have been made. Please note that approximately $1.7 million of FY 2018 WaterSMART Grants funding, if available, will be allocated for additional phases of projects selected through previous FOAs. Any awards are subject to a determination by Reclamation that FY 2018 appropriations are available and that awards can be made consistent with all program requirements. Applications submitted under this FOA may also be considered if other funding becomes available in FY 2018 or subsequently. Updated funding information is available at: www.usbr.gov/WaterSMART/weeg.

B.2. Project Funding Limitations

Multiple applications for funding may be submitted for consideration (for example, an applicant may submit a proposal for funding under Funding Group I and a separate proposal under Funding Group II). ***However, no more than $1,000,000 will be awarded to any one applicant under this FOA.***

The Federal share (Reclamation's share in addition to any other sources of Federal funding) of any one proposed project shall not exceed 50 percent of the total project costs. Generally, the non-Federal share of project costs must be expended at the same or greater rate as the federal share of project costs.

Applicants are invited to submit proposals under the following two funding groups.

B.2.1. Funding Group I

Up to $300,000 in Federal funds provided through this FOA will be available for smaller, on-the-ground projects.

- In general, projects funded under Funding Group I should be completed within 2 years of award (see *Section C.3.3. Length of Projects* for additional information).

- It is expected that funds will be awarded in the fall of 2018, contingent on appropriations.

- It is expected that more awards will be made for projects in Funding Group I than Funding Group II (described below).

B.2.2. Funding Group II

Up to $1,000,000 in Federal funds provided through this FOA will be available for larger, phased on-the-ground projects that may take up to 3 years to complete.

- Projects selected under Funding Group II will be funded on an annual basis, for a period of up to 3 years, with a maximum of $1,000,000 available for the entire project.

- Each phase of the project is expected to be substantially completed within one year of award. Recipients must demonstrate sufficient progress to receive subsequent funding for remaining phases of the project.

- Federal funding under this FOA for the first year of phased projects is expected to be awarded in the fall of 2018. Funding for the remaining project years will be made available contingent on subsequent congressional appropriations. (Note: recipients will not be asked to reapply to receive FY 2019 and FY 2020 funding).

- It is expected that only a small number of awards will be made for projects in Funding Group II.

B.3. Assistance Instrument

Project awards will be made through grants or cooperative agreements as applicable to each project. If a cooperative agreement is awarded, the recipient should expect Reclamation to have substantial involvement in the project.

Substantial involvement by Reclamation may include:

- Collaboration and participation with the recipient in the management of the project and close oversight of the recipient's activities to ensure that the program objectives are being achieved.

- Oversight may include review, input, and approval at key interim stages of the project.

At the request of the recipient, Reclamation can provide technical assistance after award of the project. If you receive Reclamation's assistance, you must account for these costs in your budget. To discuss available assistance and these costs, contact the program coordinator identified in *Section G. Agency Contacts.*

Section C. Eligibility Information

C.1. Eligible Applicants

Under P.L. 111-11, Section 9502, an eligible applicant is a state, Indian tribe, irrigation district, water district, or other organization with water or power delivery authority.

Applicants must also be located in the Western United States or Territories as identified in the Reclamation Act of June 17, 1902, as amended and supplemented; specifically: Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, Wyoming, American Samoa, Guam, the Northern Mariana Islands, and the Virgin Islands.

Those not eligible include, but are not limited to, the following entities:

- Federal Governmental entities
- Individuals
- Institutes of higher education
- 501(c)4 organizations
- 501(c)6 organizations

C.2. Cost Sharing Requirements

Applicants must be capable of cost sharing **50 percent** or more of the total project costs. Cost sharing may be made through cash or in-kind contributions or donations from the applicant or third-party partners. Cost share funding from sources outside the applicant's organization (e.g., loans or state grants) should be secured and available to the applicant prior to award. Please see *Section D.2.2.5 Project Budget* and *Section D.2.2.8 Official Resolution* for more information regarding the documentation required to verify commitments to meet cost sharing requirements.

C.2.1. Cost Share Regulations

All cost-share contributions must meet the applicable administrative and cost principles criteria established in 2 Code of Federal Regulations (CFR) Part 200, available at www.ecfr.gov.

C.2.2. Donations and In-Kind Contributions

Donations and in-kind contributions constitute the value of noncash contributions that benefit a federally assisted project. These contributions may be in the form of real property, equipment, supplies, and other expendable property, as well as the

value of goods and services directly benefiting and specifically identifiable to the project or program. The cost or value of donations and in-kind contributions that have been or will be relied on to satisfy a cost-sharing or matching requirement for another Federal financial assistance agreement, a Federal procurement contract, or any other award of Federal funds may not be relied on to satisfy the cost-share requirement for an award under this FOA. The exception to this requirement is where the Federal statute authorizing a program specifically provides that Federal funds made available for such program can be applied to matching or cost sharing requirements of other Federal programs, such as awards to tribal organizations under P.L. 93-638, as amended. Applicants should refer to 2 CFR §200.434 for regulations regarding the valuation of donations and in-kind contributions, available at www.ecfr.gov.

C.3. Eligible Projects

C.3.1. Eligible Projects

Water Conservation and Hydropower projects eligible for funding under this FOA are described below. Applications may include any one, or a combination, of the types of projects described. In general, if you are seeking funding for multiple projects (e.g., a piping project and a hydropower project) and the projects are interrelated or closely related, they should be combined in one application.

Applicants may submit multiple project proposals; however, no more than $1,000,000 will be awarded to any one applicant under this FOA.

Note: During Third-Level Evaluation (see Section E.2.4. Managerial Review*) Reclamation will review the results of the Second-Level Evaluation (see* Section E.2.2 Application Review Committee*).*

C.3.1.1. Water Conservation Projects

Projects that result in quantifiable and sustained water savings or improved water management (please note that an agreement will not be awarded for an improvement to conserve irrigation water unless the applicant agrees to the terms of Section 9504(a)(3)(B) of Public Law 111-11. See *Section F.2.3. Requirements for Agricultural Operations under Public Law 111-11, Section 9504(a)(3)(D)* of this FOA for further information). Projects include, but are not limited to:

- **Canal Lining/Piping:** Projects that line or pipe canals, resulting in conserved water. Projects include, but are not limited to:
  - Installing new proven lining materials or technology
  - Converting open canals to pipeline

  - Constructing conveyance improvements, turnouts, or pipelines

- **Municipal Metering:** Projects that install meters, resulting in measureable water savings. Projects include, but are not limited to:

  - Installing water service meters

  - Installing distribution systems meters associated with production and/or leakage quantification

- **Irrigation Flow Measurement:** Projects that improve measurement accuracy and result in reduced spills and over-deliveries to irrigators. Projects include, but are not limited to:

  - Installing weirs, flumes, ramps, etc. in open channels

  - Installing meters in pressurized pipes

- **Supervisory Control and Data Acquisition and Automation**: Projects that install SCADA and/or automation components that provide water savings when irrigation delivery system operational efficiency is improved to reduce spills, over-deliveries, and seepage. Projects include, but are not limited to:

  - Installing SCADA components that allow for remote monitoring of irrigation delivery system conditions (flow rates, water elevations, controls devices openings, etc.)

  - Installing automation components that allow for remote operation of delivery system control features (gates, valves, turnouts, etc.)

- **Irrigation Measures:** Projects that provide water savings by reducing outdoor water usage. These measures include turf removal, Smart irrigation controllers (weather or soil-moisture based) and high-efficiency nozzles (sprinkler heads). These measures are typically promoted by water entities through rebates or direct-install programs. Projects include, but are not limited to:

  - Removing turf

  - Installing Smart irrigation controllers

  - Installing high-efficiency nozzles (e.g., sprinkler heads)

C.3.1.2. Hydropower Projects

Projects that increase the use of hydropower in managing and delivering water. Projects include, but are not limited to, those discussed in the

following subsections.

Implementing Hydropower Projects Related to Water Management and Delivery

Hydropower projects related to water management and delivery include, but are not limited to:

- Installing a small-scale hydroelectric facility that enables use of renewable energy sources (e.g., installing low-head hydrokinetic power generation units in a water system)

Proposals including a hydropower component typically require additional permitting not needed for other water management improvements (e.g., canal lining). In evaluating these proposals, Reclamation may consider the applicant's progress in obtaining a Federal Energy Regulatory Commission (FERC) license or a Reclamation Lease of Power Privilege (LOPP), depending on which is applicable. Applicants for a project including a hydropower component are asked to include documentation of steps taken to date for obtaining a FERC license or a LOPP.

Note that improvements to Federal facilities that are implemented through any project awarded funding through this FOA must comply with additional requirements. The Federal government will continue to hold title to the Federal facility and any improvement that is integral to the existing operations of that facility. Please see *Section F.2.4. Title to Improvements Under Public Law 111-11, Section 9504(a)(3)(D).*

Applicants proposing hydropower development may wish to contact the program coordinator listed in *Section G, Agency Contacts,* prior to the application deadline to discuss the requirements listed above.

Note: other types of renewable energy projects, including large-scale solar, wind, and geothermal projects, are not eligible under this FOA

C.3.2. Ineligible Projects

Any project not specifically described in *Section 3.1. Eligible Projects* is not eligible under this FOA. The following subsections further explain ineligible projects.

C.3.2.1. Operations, Maintenance, and Replacement

Projects that are considered normal operations, maintenance and replacement (OM&R) are not eligible. OM&R is described as system improvements that replace or repair existing infrastructure or function without providing increased efficiency or effectiveness of water distribution over the expected life of the improvement. Examples of ineligible OM&R projects include:

- Replacing malfunctioning components of an existing facility with the same components
- Improving an existing facility to operate as originally designed
- Performing an activity on a recurring basis, even if that period is extended (e.g., 10-year interval)
- Sealing expansion joints of concrete lining because the original sealer or the water stops have failed
- Replacing broken meters with new meters of the same type
- Replacing leaky pipes with new pipes of the same type

Applicants that have questions regarding OM&R are encouraged to contact the program coordinator listed in *Section G. Agency Contacts*, prior to the application deadline for further information.

C.3.2.2. Water Reclamation, Recycling, and Reuse

Water reclamation, reuse, and desalination projects are not eligible for funding under this FOA. Entities seeking funding for these types of projects should consider Reclamation's Title XVI Water Reclamation and Reuse Program and Drought Response Program. If you have questions about a water reclamation, reuse, or desalination project please contact Amanda Erath at 303-445-2766 or aerath@usbr.gov.

C.3.2.3. Groundwater Recharge

Groundwater recharge projects are not eligible. Applicants proposing such projects should consider applying for funding under the WaterSMART Drought Resiliency Projects FOA. See the WaterSMART Drought Response Program webpage, www.usbr.gov/drought, for more information.

C.3.2.4. Water Purchases

A project that proposes using Federal funding primarily for the purchase of water is not eligible under this FOA.

C.3.2.5. Building Construction

A project that proposes to construct a building is not eligible for Federal funding under this FOA (e.g., a building to house administrative staff or to promote public awareness of water conservation).

C.3.2.6. Pilot Projects

A project that proposes to conduct a pilot study to evaluate technical capability, economic feasibility, or viability for full-scale implementation, or to test an

unproven material or technology is not eligible for Federal funding under this FOA.

C.3.2.7. High-Efficiency Indoor Appliance and Fixture Installation

A project that includes the installation of high-efficiency indoor appliances and fixtures, including toilets and urinals, whether through rebates, direct install, or by other means, is not eligible for funding under this FOA.

C.3.2.8. Other Types of Renewable Energy Projects

Renewable energy projects other than hydropower projects, including large-scale solar, wind, and geothermal projects, are not eligible under this FOA

C.3.3. Length of Projects

In general, Funding Group I projects should be completed within two years of award. Funding Group II projects should be completed within three years of award and each year are expected to complete the work planned as part of that year's phase. Applications for projects requiring more time will be considered for funding only under limited circumstances. For example, some hydropower project installations may require additional time to secure necessary permits.

Section D. Application and Submission Information

D.1. Address to Request Application Package

This document contains all information, forms, and electronic addresses required to obtain the information required for submission of an application.

If you are unable to access this information electronically, you can request paper copies of any of the documents referenced in this FOA by contacting:

By mail: Bureau of Reclamation
Financial Assistance Support Section
Attn: Mr. Darren Olson
P.O. Box 25007, MS 84-27814
Denver, CO 80225

By e-mail: dolson@usbr.gov

By telephone: 303-445-3697

D.2. Content and Form of Application Submission

All applications must conform to the requirements set forth below.

D.2.1. Application Format and Length

The total application package shall be no more than **75** consecutively numbered pages. If an application exceeds 75 pages, only the first 75 pages will be evaluated. The font shall be at least 12 points in size and easily readable. Page size shall be 8½ by 11 inches, including charts, maps, and drawings. Oversized pages will not be accepted. The technical proposal and evaluation criteria section shall be limited to a maximum of **50** pages. The SF-424 forms, letters of project support, and official resolution will not be considered in the total page count.

Applications will be prescreened for compliance to the page number limitations.

D.2.2. Application Content

The application must include the following elements to be considered complete:

- Mandatory Federal Forms
  - SF-424 Application for Federal Assistance
  - SF-424 Budget Information (A or C Form, as applicable to the project)
  - SF-424 Assurances (B or D Form, as applicable to the project)

- SF-LLL Disclosure of Lobbying Activities (if applicable)

These forms may be obtained at www.grants.gov/web/grants/forms/sf-424-family.html

- Title page
- Table of contents
- Technical proposal and evaluation criteria (limited to **50** pages)
  - Executive summary
  - Background data
  - Project Location
  - Technical project description
  - Evaluation criteria
- Project budget
  - Funding plan and letters of commitment
  - Budget proposal
  - Budget narrative
- Environmental and cultural resources compliance
- Required permits or approvals
- Letters of project support (will not count toward the page limitation)
- Official resolution (will not count toward the page limitation)

D.2.2.1. Mandatory Federal Forms

The application must include the following standard Federal forms:

SF-424 Application for Federal Assistance

A fully completed SF-424, Application for Federal Assistance signed by a person legally authorized to commit the applicant to performance of the project must be submitted with the application. Failure to submit a properly signed SF-424 may result in the elimination of the application from further consideration.

SF-424 Budget Information

A fully completed SF-424A Budget Information Non-Construction Programs, or an SF-424C Budget Information Construction Programs must be submitted with the application.

SF-424 Assurances

A SF-424B Assurances Non-Construction Programs, or an SF-424D Assurances Construction Programs, signed by a person legally authorized to commit the applicant to performance of the project shall be included. Questions regarding whether to use SF-424B or SF-424D should be referred to the Grants Management Point of Contact under Agency Contacts. Failure to submit a properly signed SF-424B or SF-424D may result in the elimination of the application from further consideration.

SF-LLL Disclosure of Lobbying Activities

A fully completed and signed SF-LLL, Disclosure of Lobbying Activities is required is required if the applicant has made or agreed to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a covered Federal action.

D.2.2.2. Title Page

Provide a brief, informative, and descriptive title for the proposed work that indicates the nature of the project. Include the name and address of the applicant, and the name and address, e-mail address, and telephone of the project manager.

D.2.2.3. Table of Contents

List all major sections of the proposal in the table of contents.

D.2.2.4. Technical Proposal and Evaluation Criteria

The technical proposal and evaluation criteria (**50** pages maximum) includes:

(1) Executive summary
(2) Background data
(3) Technical project description
(4) Project description
(5) Evaluation criteria

Executive Summary

The executive summary should include:

- The date, applicant name, city, county, and state
- A one paragraph project summary that specifies the work proposed, including how funds will be used to accomplish specific project activities and briefly identifies how the proposed project contributes to accomplishing the goals of this FOA.
- State the length of time and estimated completion date for the proposed project

- Whether or not the proposed project is located on a Federal facility

Background Data

As applicable, describe the source of water supply, the water rights involved, current water uses (e.g., agricultural, municipal, domestic, or industrial), the number of water users served, and the current and projected water demand. Also, identify potential shortfalls in water supply. If water is primarily used for irrigation, describe major crops and total acres served.

In addition, describe the applicant's water delivery system as appropriate. For agricultural systems, please include the miles of canals, miles of laterals, and existing irrigation improvements (e.g., type, miles, and acres). For municipal systems, please include the number of connections and/or number of water users served and any other relevant information describing the system.

If the application includes hydropower or energy efficiency elements, describe existing energy sources and current energy uses.

Identify any past working relationships with Reclamation. This should include the date(s), description of prior relationships with Reclamation, and a description of the project(s).

Project Location

Provide specific information on the proposed project location or project area including a map showing the geographic location. For example, {project name} is located in {state and county} approximately {distance} miles {direction, e.g. northeast} of {nearest town}. The project latitude is {##°##'N} and longitude is {###°##'W}. For larger project areas, please provide location information in one of the following formats:

1. Shapefile (.shp)
2. KMZ/KML (.kmz or .kml) aka Google Earth File, not an exported Google Earth map
3. AutoCAD (.dwg)
4. PDF map (.pdf)

Technical Project Description

The technical project description should describe the work in detail, including specific activities that will be accomplished. This description shall have sufficient detail to permit a comprehensive evaluation of the proposal.

Evaluation Criteria

(See *Section E.1. Technical Proposal: Evaluation Criteria* for additional details, including a detailed description of each criterion and subcriterion and points associated with each.)

The evaluation criteria portion of your application should thoroughly address each criterion and subcriterion in the order presented to assist in the complete and accurate evaluation of your proposal.

It is suggested that applicants copy and paste the evaluation criteria and subcriteria in* Section E.1. Technical Proposal: Evaluation Criteria *into their applications to ensure that all necessary information is adequately addressed

D.2.2.5. Project Budget

The project budget includes:

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

Funding Plan and Letters of Commitment

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

Project funding provided by a source other than the applicant shall be supported with letters of commitment from these additional sources. Letters of commitment shall identify the following elements:

- The amount of funding commitment
- The date the funds will be available to the applicant
- Any time constraints on the availability of funds
- Any other contingencies associated with the funding commitment

Commitment letters from third party funding sources should be submitted with your application. If commitment letters are not available at the time of the application submission, please provide a timeline for submission of all commitment letters. Cost-share funding from sources outside the applicant's organization (e.g., loans or State grants), should be secured and available to the applicant prior to award.

Reclamation will not make funds available for an award under this FOA until the recipient has secured non-Federal cost-share. Reclamation will execute a financial assistance agreement once non-Federal funding has been secured or Reclamation determines that there is sufficient evidence and likelihood that non-Federal funds will be available to the applicant subsequent to executing the agreement.

The funding plan must include all Project costs, as follows:

- How you will make your contribution to the cost-share requirement, such as monetary and/or in-kind contributions and source funds contributed by the applicant (e.g., reserve account, tax revenue, and/or assessments).

- Describe any donations or in-kind costs incurred before the anticipated Project start date that you seek to include as project costs. For each cost, identify:

    - The project expenditure and amount
    - The date of cost incurrence
    - How the expenditure benefits the Project
    - Provide the identity and amount of funding to be provided by funding partners.

- Describe any funding requested or received from other Federal partners. *Note: other sources of Federal funding may not be counted towards the required cost share unless otherwise allowed by statute.*

- Describe any pending funding requests that have not yet been approved, and explain how the project will be affected if such funding is denied.

Please include the following chart (Table 1) to summarize all funding sources. Denote in-kind contributions with an asterisk (*).

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

FUNDING SOURCES	AMOUNT
Non Federal Entities	
1.	
2.	
3.	
Non-Federal Subtotal	
Other Federal Entities	
1.	
2.	
3.	
Other Federal Subtotal	
REQUESTED RECLAMATION FUNDING	

Budget Proposal

The budget proposal should include detailed information on the categories listed below and must clearly identify ***all*** Project costs, including those that will be contributed as non-Federal cost share. Unit costs must be provided for all budget items including the cost of work to be provided by contractors. The budget proposal should also include any in-kind contributions or donations of goods and services that will be provided to complete the project. It is strongly advised that applicants use the budget proposal format shown below on Table 2 or a similar format that provides this information. If selected for award, successful applicants must submit detailed supporting documentation for all budgeted costs.

Note: The costs of preparing bids, proposals, or applications on potential Federal and non-Federal awards or projects, including the development of data necessary to support the non-Federal entity's should be treated as indirect costs and should not be included as a direct project cost (2 CFR §200.460).

Table 2.—Sample Budget Proposal Format

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	$/Unit	Quantity		
Salaries and Wages				
Employee 1				$
Employee 2				$
Employee 3				$
Fringe Benefits				
Full-Time Employees				$
Part-Time Employees				$
Travel				
Trip 1				$
Trip 2				$
Trip 3				$
Equipment				
Item A				$
Item B				$
Item C				$
Supplies and Materials				
Item A				$
Item B				$
Contractual/Construction				
Contractor A				$
Contractor B				$
Other				
Other				$
TOTAL DIRECT COSTS				**$**
Indirect Costs				
Type of rate	percentage	$base		**$**
TOTAL ESTIMATED PROJECT COSTS				**$**

Budget Narrative

Submission of a budget narrative is mandatory. An award will not be made to any applicant who fails to fully disclose this information. The budget narrative provides a discussion of, or explanation for, items included in the budget proposal. If in-kind contributions or donations of goods and services are included in the budget proposal, the narrative should identify the source(s) and describe how the value of the goods and services was determined The types of information to describe in the narrative include, but are not limited to, those listed in the following subsections. Costs, including the valuation of in-kind contributions and

donations, must comply with the applicable cost principles contained in 2 CFR Part §200, available at the Electronic Code of Federal Regulations (www.ecfr.gov).

Salaries and Wages

Indicate the program manager and other key personnel by name and title. Other personnel should be indicated by title alone. For all positions, indicate salaries and wages, estimated hours or percent of time, and rate of compensation. The labor rates must identify the direct labor rate separate from the fringe rate or fringe cost for each category. All labor estimates must be allocated to specific tasks as outlined in the applicant's technical project description. Labor rates and proposed hours shall be displayed for each task. The budget proposal and narrative should include estimated hours for compliance with reporting requirements, including final project and evaluation. Please see *Section F.3.2. Program Performance Reports* for information on types and frequency of reports required.

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

Fringe Benefits

Identify the rates/amounts, what costs are included in this category, and the basis of the rate computations. Indicate whether these rates are used for application purposes only or whether they are fixed or provisional rates for billing purposes. Federally approved rate agreements are acceptable for compliance with this item.

Travel

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

Equipment

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

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

If the applicant intends to use their own equipment for the purposes of the project, the proposed usage rates should fall within the equipment usage rates outlined by the United States Army Corps of Engineers (USACE) within their Construction Equipment Ownership and Operating Expense Schedule (EP 1110-1-8)

at www.publications.usace.army.mil/USACE-Publications/Engineer-Pamphlets/u43545q/313131302D312D38.

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

Materials and Supplies

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

Contractual

Identify all work that will be accomplished by subrecipients, consultants, or contractors, including a breakdown of all tasks to be completed, and a detailed budget estimate of time, rates, supplies, and materials that will be required for each task. Identify how the budgeted costs for sub-recipients, consultants, or contractors were determined to be fair and reasonable. *Note: If a sub-recipient, consultant, or contractor is proposed and approved at the time of award, no other approvals will be required. Any changes or additions will require a request for approval.*

Environmental and Regulatory Compliance Costs

Applicants must include a line item in their budget to cover environmental compliance costs. “Environmental compliance costs” refer to costs incurred by Reclamation and the recipient in complying with environmental regulations applicable to an award under this FOA, including costs associated with any required documentation of environmental compliance, analyses, permits, or approvals. Applicable Federal environmental laws could include National Environmental Policy Act (NEPA), Endangered Species Act (ESA), National Historic Preservation Act (NHPA), Clean Water Act (CWA), and other regulations depending on the project. Such costs may include, but are not limited to:

- The cost incurred by Reclamation to determine the level of environmental compliance required for the project
- The cost incurred by Reclamation, the recipient, or a consultant to prepare any necessary environmental compliance documents or reports
- The cost incurred by Reclamation to review any environmental compliance documents prepared by a consultant

- The cost incurred by the recipient in acquiring any required approvals or permits, or in implementing any required mitigation measures

The amount of the line item should be based on the actual expected environmental compliance costs for the project, including Reclamation's cost to review environmental compliance documentation. How environmental compliance activities will be performed (e.g., by Reclamation, the applicant, or a consultant) and how the environmental compliance funds will be spent, will be determined pursuant to subsequent agreement between Reclamation and the applicant. The amount of funding required for Reclamation to conduct any environmental compliance activities, including Reclamation's cost to review environmental compliance documentation, will be withheld from the Federal award amount and placed in an environmental compliance account to cover such costs. If any portion of the funds budgeted for environmental compliance is not required for compliance activities, such funds may be reallocated to the project, if appropriate.

Other Expenses

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

Indirect Costs

Applicants with a federally approved indirect cost rate agreement may include indirect costs as part of the project budget. Show the agreed upon rate, cost base, and proposed amount for allowable indirect costs. It is not acceptable to simply incorporate indirect rates within other direct cost line items.

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

If the applicant does not have a federally approved indirect cost rate agreement and is proposing a rate greater than the *de minimis* 10 percent rate, include the computational basis for the indirect expense pool and corresponding allocation base for each rate. Information on "Preparing and Submitting Indirect Cost Proposals" is available from Interior, the National Business Center, and Indirect Cost Services, at www.doi.gov/ibc/services/finance/indirect-cost-services. If selected, the applicant will be required to obtain a negotiated Federal indirect cost rate agreement.

Total Costs

Indicate total amount of project costs, including the Federal and non-Federal cost share amounts.

D.2.2.6. 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 must respond to the following list of questions focusing on the NEPA, ESA, and NHPA requirements. Please answer the following questions to the best of your knowledge. If any question is not applicable to the project, please explain why. The application should include the answers to:

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

- 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?

- 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.

- When was the water delivery system constructed?

- 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.

- 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.

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

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

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

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

Note, if mitigation is required to lessen environmental impacts, the applicant may, at Reclamation's discretion, be required to report on progress and completion of these commitments. Reclamation will coordinate with the applicant to establish reporting requirements and intervals accordingly.

Under no circumstances may an applicant begin any ground-disturbing activities (including grading, clearing, and other preliminary activities) on a project before environmental compliance is complete and Reclamation explicitly authorizes work to proceed. This pertains to all components of the proposed project, including those that are part of the applicant's non-Federal cost-share. Reclamation will provide a successful applicant with information once environmental compliance is complete. An applicant that proceeds before environmental compliance is complete may risk forfeiting Reclamation funding under this FOA. Costs incurred for ground-disturbing activities performed prior to award are not eligible for reimbursement or cost share unless the recipient can provide documentation that Federal environmental and cultural resource clearances were obtained for the Project prior to the commencement of the activities.

D.2.2.7. Required Permits or Approvals

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

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

D.2.2.8. Letters of Support

Please include letters from interested stakeholders supporting the proposed project. To ensure your proposal is accurately reviewed, please attach all letters of support/ partnership letters as an appendix. *(Note: this will not count against the application page limit.)* Letters of support received after the application deadline for this FOA will not be included with your application.

D.2.2.9. Official Resolution

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

- The identity of the official with legal authority to enter into an agreement
- The board of directors, governing body, or appropriate official who has reviewed and supports the application submitted
- The capability of the applicant to provide the amount of funding and/or in-kind contributions specified in the funding plan
- That the applicant will work with Reclamation to meet established deadlines for entering into a grant or cooperative agreement

An official resolution meeting the requirements set forth above is mandatory. If the applicant is unable to submit the official resolution by the application deadline because of the timing of board meetings or other justifiable reasons, the official resolution may be submitted up to 30 days after the application deadline.

D.3. Unique Entity Identifier and System for Award Management

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

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

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

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

Meeting the requirements set forth above is mandatory. If the applicant is unable to complete registration by the application deadline, the unique entity identifier must be obtained and SAM registration must be initiated within 30 days after the application deadline in order to be considered for selection and award.

Reclamation will not make a Federal award to an applicant until the applicant has complied with all applicable unique entity identifier and SAM requirements and, if an applicant has not fully complied with the requirements by the time the

Reclamation is ready to make an award, Reclamation may determine that the applicant is not qualified to receive a Federal award and use that determination as a basis for making a Federal award to another applicant.

D.4. Submission Date and Time

Application submission date deadline:

Thursday, May 10, 2018, 4:00 p.m. Mountain Daylight Time

Proposals received after the application deadline will not be considered unless it can be determined that the delay was caused by Reclamation mishandling.

Please note that any application submitted for funding under this FOA may be subjected to a Freedom of Information Act request (5 U.S.C. Section 552, as amended by P.L. No. 110-175), and as a result, may be made publicly available. Following awards of funding, Reclamation will post all successful applications on the Reclamation website, www.usbr.gov/WaterSmart/, after conducting any redactions determined necessary by Reclamation, in consultation with the recipient.

D.4.1. Application Delivery Instructions

Applications may be submitted electronically through Grants.gov (www.grants.gov) or hard copies may be submitted to either one of the following addresses. Under no circumstances will applications received through any other method (such as email or fax) be considered eligible for award.

By mail or USPS overnight services:

Bureau of Reclamation
Financial Assistance Support Section
Attn: Mr. Darren Olson
P.O. Box 25007, MS 84-27814
Denver, CO 80225

All other express delivery:

Bureau of Reclamation mail services
Attn: Mr. Darren Olson
Denver Federal Center
Bldg. 67, Rm. 152
6th Avenue and Kipling Street
Denver, CO 80225

By courier services:

Bureau of Reclamation
Attn: Mr. Darren Olson
Denver Federal Center
Bldg. 56, Rm. 1000
6th Avenue and Kipling Street
Denver, CO 80225

D.4.2. Instructions for Submission of Project Application

Each applicant should submit an application in accordance with the instructions contained in this section.

D.4.2.1. Applications Submitted by Mail, Express Delivery or Courier Services

Please follow these instructions to submit your application by mail, express delivery, or courier services.

- Applicants should submit one copy of all application documents for hardcopy submissions. Only use a binder clip for documents submitted. Do not staple or otherwise bind application documents.

- Hard copy applications may be submitted by mail, express delivery, or courier services to the addresses identified in this FOA.

- Materials arriving separately will not be included in the application package and may result in the application being rejected or not funded. This does not apply to letters of support, funding commitment letters, or official resolutions.

- Faxed and emailed copies of application documents will not be accepted.

- Do not include a cover letter or company literature/brochure with the application. All pertinent information must be included in the application package.

D.4.2.2. Applications Submitted Electronically

If the applicant chooses to submit an electronic application, it must be submitted through Grants.gov (www.grants.gov). Reclamation encourages applicants to submit their applications for funding electronically through the URL: www.grants.gov/applicants/apply-for-grants.html. Applicant resource documents and a full set of instructions for registering with Grants.gov (www.grants.gov) and completing and submitting applications online are available at: www.grants.gov/applicants/apply-for-grants.html.

- Please note that submission of an application electronically requires prior registration through Grants.gov, which may take 7 to 21 days. Please see registration instructions at www.grants.gov/applicants/apply-for-grants.html. *In addition, please note that the Grants.gov system only accepts applications submitted by individuals that are registered and active in SAM as both a user and an Authorized Organizational Representative.*

- Applicants have experienced significant delays when attempting to submit applications through Grants.gov. If you plan to submit your application through Grants.gov you are encouraged to submit your application several days prior to the application deadline. If you are a properly registered Grants.gov applicant and encounter problems with the Grants.gov application submission process, you must contact the Grants.gov Help Desk to obtain a case number. This case number will provide evidence of your attempt to submit an application prior to the submission deadline.

Regardless of the delivery method used, you must ensure that your proposal arrives by the date and time deadline stated in this FOA. Applications received after this date and time due to weather or express delivery/courier performance will not be considered for award. Late applications will not be considered unless it is determined that the delay was caused by Reclamation mishandling or by a problem with the Grants.gov application system.

D.4.2.3. Acknowledgement of Application Receipt.

If an application is submitted by mail, express delivery, or courier, Reclamation will notify you via email that your application was received.

If an application is submitted through Grants.gov, you will receive an email acknowledging receipt of the application from Grants.gov. In addition, Reclamation will confirm via email that your application was successfully downloaded from Grants.gov.

D.5. Intergovernmental Review

This FOA is not subject to Executive Order 12372, “Intergovernmental Review of Federal Programs.”

D.6. Funding Restrictions: Pre-award Costs

Project pre-award costs that have been incurred prior to the date of award may be submitted for consideration as an allowable reimbursable expense. **In no case will pre-award costs incurred prior to July 1, 2017 be considered for cost-share purposes.**

For example, such costs might include design or construction plans and environmental compliance costs directly supporting the proposed project. Reclamation will review the proposed pre-award costs to determine if they are allowable in accordance with the authorizing legislation and applicable cost principles. To be considered allowable, any pre-award costs proposed for consideration under the new awards must comply with all applicable requirements under this FOA.

D.7. Automated Standard Application for Payments Registration

All applicants must also be registered with and willing to process all payments through the Department of Treasury Automated Standard Application for Payments (ASAP) system. All recipients with active financial assistance agreements with Reclamation must be enrolled in ASAP under the appropriate Agency Location Code(s) and the Data Universal Number System (DUNS) Number prior to the award of funds. If a recipient has multiple DUNS numbers they must separately enroll within ASAP for each unique DUNS Number and/or Agency. All of the information on the enrollment process for recipients, including the enrollment initiation form and the enrollment mailbox can be found at www.usbr.gov/mso/aamd/asap.html.

Note that if your entity is currently enrolled in the ASAP system with an agency other than Reclamation, you must enroll specifically with Reclamation in order to process payments.

Section E. Application Review Information

E.1. Technical Proposal: Evaluation Criteria

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

Evaluation Criteria: Scoring Summary	Points:
A. Quantifiable Water Savings	**30**
B. Water Supply Reliability	**18**
C. Implementing Hydropower	**18**
D. Complementing On-Farm Irrigation Improvements	**10**
E. Department of the Interior Priorities	**10**
F. Implementation and Results	**6**
G: Nexus to Reclamation Project Activities	**4**
H: Additional Non-Federal Funding	**4**
Total	***100***

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

E.1.1. Evaluation Criterion A—Quantifiable Water Savings (30 points)

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

All applicants should be sure to address the following:

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

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

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

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

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.

(1) **Canal Lining/Piping:** Canal lining/piping projects can provide water savings when irrigation delivery systems experience significant losses due to canal seepage. Applicants proposing lining/piping 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.

b. How have average annual canal seepage losses been determined? Have ponding and/or inflow/outflow tests been conducted to determine seepage rates under varying conditions? If so, please provide detailed descriptions of testing methods and all results. If not, please provide an explanation of the method(s) used to calculate seepage losses. All estimates should be supported with

multiple sets of data/measurements from representative sections of canals.

c. What are the expected post-project seepage/leakage losses and how were these estimates determined (e.g., can data specific to the type of material being used in the project be provided)?

d. What are the anticipated annual transit loss reductions in terms of acre- feet per mile for the overall project and for each section of canal included in the project?

e. How will actual canal loss seepage reductions be verified?

f. Include a detailed description of the materials being used.

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

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

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

c. For installing individual water user meters, 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.

d. If installing distribution main meters will result in conserved water, please provide support for this determination (including, but not limited to leakage studies, previous leakage reduction projects, etc.). Please provide details underlying any assumptions being made in support of water savings estimates (e.g., how leakage will be reduced once identified with improved meter data).

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

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

(3) **Irrigation Flow Measurement:** Irrigation flow measurement improvements can provide water savings when improved measurement accuracy results in reduced spills and over-deliveries to irrigators. Applicants proposing municipal metering projects should address the following:

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

b. Have current operational losses been determined? If water savings are based on a reduction of spills, please provide support for the amount of water currently being lost to spills.

c. Are flows currently measured at proposed sites and if so what is the accuracy of existing devices? How has the existing measurement accuracy been established?

d. Provide detailed descriptions of all proposed flow measurement devices, including accuracy and the basis for the accuracy.

e. Will annual farm delivery volumes be reduced by more efficient and timely deliveries? If so, how has this reduction been estimated?

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

(4) **Turf Removal:** Applicants proposing turf removal projects should address the following:

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

b. What is the total surface area of turf to be removed and what is the estimated average annual turf consumptive use rate per unit area?

c. Was historical water consumption data evaluated to estimate average annual turf consumptive use per unit area? If so, did the evaluation include a weather adjustment component?

d. Will site audits be performed before applicants are accepted into the program?

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

(5) **Smart Irrigation Controllers and High-Efficiency Nozzles:** Applicants proposing smart irrigation controller or high-efficiency nozzle projects should address the following:

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

b. Was historical water consumption data evaluated to estimate the percent reduction in water demand per unit area of irrigated landscape? If so, did the evaluation include a weather adjustment component?

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

d. Will the devices be installed through a rebate or direct-install program?

e. Will site audits be performed before and after installation?

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

Note: a project that includes the installation of high-efficiency indoor appliances and fixtures, including toilets, whether through rebates, direct install, or by other means, is not eligible for funding under this FOA.

E.1.2. Evaluation Criterion B—Water Supply Reliability (18 points)

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

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

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

  - Is there widespread support for the project?
  - What is the significance of the collaboration/support?
  - Is the possibility of future water conservation improvements by other water users enhanced by completion of this project?

- Will the project make water available to address a specific water reliability concern? Please address:
  - Explain and provide detail of the specific issue(s) in the area that is impacting water reliability, such as shortages due to drought, increased demand, or reduced deliveries.
  - Describe where the conserved water will go/how it will be used. Will the project directly address a heightened competition for finite water supplies and over-allocation (e.g., population growth)? Will it be left in the river system?
  - Describe how the project will address the water reliability concern?
  - Will the project help to prevent a water-related crisis or conflict? Is there frequently tension or litigation over water in the basin?
  - Provide a description of the mechanism that will be used, if necessary, to put the conserved water to the intended use.
  - Describe the roles of any partners in the process. Please attach any relevant supporting documents.
  - Indicate the quantity of conserved water that will be used for the intended purpose.
- Will the project benefit Indian tribes?
- Will the project benefit rural or economically disadvantaged communities?
- 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.
- Will the project address water supply reliability in other ways not described above?

E.1.3. Evaluation Criterion C—Implementing Hydropower (18 points)

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

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

Describe the amount of energy capacity. For projects that implement hydropower systems, state the estimated amount of capacity (in kilowatts) of the system. Please provide sufficient detail supporting the stated estimate, including all calculations in support of the estimate.

Describe the amount of energy generated. For projects that implement hydropower systems, state the estimated amount of energy that the system will generate (in kilowatt hours per year). Please provide sufficient detail supporting the stated estimate, including all calculations in support of the estimate.

Describe any other benefits of the hydropower project. Please describe and provide sufficient detail on any additional benefits expected to result from the hydropower project, including:

- Any expected reduction in the use of energy currently supplied through a Reclamation project
- Anticipated benefits to other sectors/entities.
- Expected water needs, if any, of the system

E.1.4. Evaluation Criterion D—Complementing On-Farm Irrigation Improvements (10 points)

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

Note: Scoring under this criterion is based on an overall assessment of the extent to which the WaterSMART Grant project will complement ongoing or future on-farm improvements. Applicants should describe any proposal made to NRCS, or any plans to seek assistance from NRCS in the future, and how an NRCS-assisted activity would complement the WaterSMART Grant project. Financial assistance through the Environmental Quality Incentives Program (EQIP) is the most commonly used program by which NRCS helps producers implement improvements to irrigation systems, but NRCS does have additional technical or financial assistance programs that may be available. Applicants may receive

maximum points under this criterion by providing the information described in the bullet points below. **Applicants are *not* required to have assurances of NRCS assistance by the application deadline to be awarded the maximum number of points under this sub-criterion.** Reclamation may contact applicants during the review process to gather additional information about pending applications for NRCS assistance if necessary.

Please note: on-farm improvements themselves are *not* eligible activities for funding under this FOA. This criterion is intended to focus on how the WaterSMART Grant project will complement ongoing or future on-farm improvements. NRCS will have a separate application process for the on-farm components of selected projects that may be undertaken in the future, separate of the WaterSMART Grant project.

If the proposed project will complement an on-farm improvement eligible for NRCS assistance, please address the following:

- Describe any planned or ongoing projects by farmers/ranchers that receive water from the applicant to improve on-farm efficiencies.
    - Provide a detailed description of the on-farm efficiency improvements.
    - Have the farmers requested technical or financial assistance from NRCS for the on-farm efficiency projects, or do they plan to in the future?
    - If available, provide documentation that the on-farm projects are eligible for NRCS assistance, that such assistance has or will be requested, and the number or percentage of farms that plan to participate in available NRCS programs.
    - Applicants should provide letters of intent from farmers/ ranchers in the affected project areas.
- Describe how the proposed WaterSMART project would complement any ongoing or planned on-farm improvement.
    - Will the proposed WaterSMART project directly facilitate the on-farm improvement? If so, how? For example, installation of a pressurized pipe through WaterSMART can help support efficient on-farm irrigation practices, such as drip-irrigation.

OR

    - Will the proposed WaterSMART project complement the on-farm project by maximizing efficiency in the area? If so, how?

- Describe the on-farm water conservation or water use efficiency benefits that would result from the on-farm component of this project.

    - Estimate the potential on-farm water savings that could result in acre-feet per year. Include support or backup documentation for any calculations or assumptions.

Note: On-farm water conservation improvements that complement the water delivery improvement projects selected through this FOA may be considered for NRCS funding and technical assistance to the extent that such assistance is available. For more information, including application deadlines and a description of available funding, please contact your local NRCS office. See the NRCS website for office contact information, www.nrcs.usda.gov/wps/portal/nrcs/main/national/contact/states/.

E.1.5. Evaluation Criterion E—Department of the Interior Priorities (10 points)

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

1. *Creating a conservation stewardship legacy second only to Teddy Roosevelt*
    a. Utilize science to identify best practices to manage land and water resources and adapt to changes in the environment;
    b. Examine land use planning processes and land use designations that govern public use and access;
    c. Revise and streamline the environmental and regulatory review process while maintaining environmental standards.
    d. Review DOI water storage, transportation, and distribution systems to identify opportunities to resolve conflicts and expand capacity;
    e. Foster relationships with conservation organizations advocating for balanced stewardship and use of public lands;
    f. Identify and implement initiatives to expand access to DOI lands for hunting and fishing;
    g. Shift the balance towards providing greater public access to public lands over restrictions to access.

2. *Utilizing our natural resources*
    a. Ensure American Energy is available to meet our security and economic needs;
    b. Ensure access to mineral resources, especially the critical and rare earth minerals needed for scientific, technological, or military applications;
    c. Refocus timber programs to embrace the entire 'healthy forests' lifecycle;
    d. Manage competition for grazing resources.

3. *Restoring trust with local communities*
    a. Be a better neighbor with those closest to our resources by improving dialogue and relationships with persons and entities bordering our lands;
    b. Expand the lines of communication with Governors, state natural resource offices, Fish and Wildlife offices, water authorities, county commissioners, Tribes, and local communities.

4. *Striking a regulatory balance*
    a. Reduce the administrative and regulatory burden imposed on U.S. industry and the public;
    b. Ensure that Endangered Species Act decisions are based on strong science and thorough analysis.

5. *Modernizing our infrastructure*
    a. Support the White House Public/Private Partnership Initiative to modernize U.S. infrastructure;
    b. Remove impediments to infrastructure development and facilitate private sector efforts to construct infrastructure projects serving American needs;
    c. Prioritize DOI infrastructure needs to highlight:
        1. Construction of infrastructure;
        2. Cyclical maintenance;
        3. Deferred maintenance.

E.1.6. Evaluation Criterion F—Implementation and Results (6 points)

*Up to **6 points** may be awarded for these subcriteria.*

E.1.6.1. Subcriterion F.1— Project Planning

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

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

Provide the following information regarding project planning:

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

(2) 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).

E.1.6.2. Subcriterion F.2— Performance Measures

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

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

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

E.1.7. Evaluation Criterion G— Nexus to Reclamation Project Activities (4 Points)

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

- Is the proposed project connected to Reclamation project activities? If so, how? Please consider the following:
  - Does the applicant receive Reclamation project water?
  - Is the project on Reclamation project lands or involving Reclamation facilities?
  - Is the project in the same basin as a Reclamation project or activity?
  - Will the proposed work contribute water to a basin where a Reclamation project is located?
- Will the project benefit any tribe(s)?

E.1.8. Evaluation Criterion H— Additional Non-Federal Funding (4 points)

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

$$\frac{\text{Non-Federal Funding}}{\text{Total Project Cost}}$$

E.2. Review and Selection Process

The Federal government reserves the right to reject any and all applications that do not meet the requirements or objectives of this FOA. Awards will be made for projects most advantageous to the Federal Government. The evaluation process will be comprised of the steps described in the following subsections.

E.2.1. Initial Screening

All application packages will be screened to ensure that:

- The applicant meets the eligibility requirements stated in this FOA.
- The applicant meets the unique entity identifier and SAM registration requirements stated in this FOA (this may be completed up to 30 days after the application deadline).
- The application meets the content requirements of the FOA package, including submission of a technical proposal, including responses to the evaluation criteria, a funding plan, budget proposal, and budget narrative.

- The application contains a properly executed SF-424, Application for Financial Assistance and form SF-424B, Assurances Non-Construction Programs, or SF-424D, Assurances Construction Programs and a completed SF-424A, Budget Information Non-Construction Programs or SF-424C, Budget Information Construction Programs.

- The application includes an official resolution, adopted by the applicant's board of directors, governing body, or appropriate authorized official (this may be submitted up to 30 days after the application deadline).

- The application and funding plan meets or exceeds the minimum non-Federal cost-share requirements identified in this FOA.

- The project can be completed by September 30, 2020 (Funding Group I), or by September 30, 2021 (for a 3-year Funding Group II project).

Reclamation reserves the right to remove an application from funding consideration if it does not pass all Initial Screening criteria listed above. An applicant that has submitted an application that is determined to be ineligible for funding will be notified along with other applicants, or sooner, if possible.

E.2.2. Application Review Committee

Evaluation criteria will comprise the total evaluation weight as stated in the *Section E.1 Evaluation Criteria*. Application Review Information. Applications will be scored against the evaluation criteria by an Application Review Committee (ARC), made up of experts in relevant disciplines selected from across Reclamation. The ARC will also review the application to ensure that the Project meets the description of eligible projects and meets the objective of this FOA.

During ARC review, Reclamation may contact applicants to request clarifications to the information provided, if necessary.

E.2.3. Red-Flag Review

Following the results of the ARC review, Reclamation offices will review the top-ranking applications and will identify any reasons why a proposed project would not be feasible or otherwise advisable, including environmental or cultural resources compliance issues, permitting issues, legal issues, or financial position. Positive or negative past performance by the applicant and any partners in previous working relationships with Reclamation may be considered, including whether the applicant is making significant progress toward the completion of outstanding financial assistance agreements and whether the applicant is in compliance with all reporting requirements associated with previously funded projects.

In addition, during this review, Reclamation will address any specific concerns or questions raised by members of the ARC, conduct a preliminary budget review, and evaluate the applicant's ability to meet cost share as required.

E.2.4. Managerial Review

Reclamation management will prioritize projects to ensure the total amount of all awards does not exceed available funding levels. Management will also ensure that all projects meet the scope, priorities, requirements, and objectives of this FOA. Management may also prioritize projects to ensure that multiple project types are represented, such as hydropower projects. After completion of the Managerial Review, Reclamation will notify applicants whose proposals have been selected for award consideration.

E.2.5. Pre-Award Clearances and Approvals

The following pre-award clearances and approvals must be obtained before an award of funding is made. If the results of all pre-award reviews and clearances are satisfactory, an award of funding will be made once the agreement is finalized (approximately one to three months from the date of initial selection). If the results of pre-award reviews and clearances are unsatisfactory, consideration of funding for the project may be withdrawn.

E.2.5.1. Environmental Review

Reclamation will forward all proposals to the appropriate Reclamation Regional or Area Office for completion of environmental compliance. To the extent possible, environmental compliance will be completed before a financial assistance agreement is signed by the parties. However, in most cases, the award will be made contingent on completion of environmental compliance. The financial assistance agreement will describe how compliance will be carried out and how the costs will be paid. Ground disturbing activities may not occur until this second level of environmental analysis is completed.

E.2.5.2. Budget Analysis and Business Evaluation

A Reclamation Grants Officer (GO) will also conduct a detailed budget analysis and complete a business evaluation and responsibility determination. During this evaluation, the GO will consider several factors that are important, but not quantified, such as:

- Allowability, allocability, and reasonableness of proposed costs
- Financial strength and stability of the applicant
- Past performance, including satisfactory compliance with all terms and conditions of previous awards, such as environmental compliance issues,

reporting requirements, proper procurement of supplies and services, and audit compliance

- Adequacy of personnel practices, procurement procedures, and accounting policies and procedures, as established by applicable Office of Management and Budget circulars

E.3. Federal Award Performance Integrity Information System

Prior to making an award with a Federal total estimated amount greater than $150,000, Reclamation is required to review and consider any information about the applicant that is in the designated integrity and performance system accessible through System of Award Management (SAM) (currently Federal Award Performance Integrity Information System [FAPIIS]) (see 41 United States Code [U.S.C.] §2313). An applicant, at its option, may review information in the designated integrity and performance systems accessible through SAM and comment on any information about itself that a Federal awarding agency previously entered and is currently in the designated integrity and performance system accessible through SAM. Reclamation will consider any comments by the applicant, in addition to the other information in FAPIIS, in making a judgment about the applicant's integrity, business ethics, and record of performance under Federal awards when completing the review of risk posed by applicants as described in 2 CFR §200.205 Federal awarding agency review of risk posed by applicants.

E.4. Anticipated Announcement and Federal Award Date

Reclamation expects to contact potential award recipients and unsuccessful applicants in August 2018 or slightly later if necessary. Within one to three months after that date, financial assistance agreements will be awarded to applicants that successfully pass all pre-award reviews and clearances.

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Section F. Federal Award Administration Information

F.1. Federal Award Notices

Successful applicants will receive by electronic mail, a notice of selection signed by a Reclamation Grants Officer. This notice is not an authorization to begin performance.

F.2. Administrative and National Policy Requirements

F.2.1. Environmental and Cultural Resources Compliance

All projects being considered for award funding will require compliance with the National Environmental Policy Act (NEPA) before any ground-disturbing activity may begin. Compliance with all applicable state, Federal and local environmental, cultural, and paleontological resource protection laws and regulations is also required. These may include, but are not limited to, the Clean Water Act (CWA), the Endangered Species Act (ESA), the National Historic Preservation Act (NHPA), consultation with potentially affected tribes, and consultation with the State Historic Preservation Office.

Reclamation will be the lead Federal agency for NEPA compliance and will be responsible for evaluating technical information and ensuring that natural resources, cultural, and socioeconomic concerns are appropriately addressed. As the lead agency, Reclamation is solely responsible for determining the appropriate level of NEPA compliance. Further, Reclamation is responsible to ensure that findings under NEPA, and consultations, as appropriate, will support Reclamation's decision on whether to fund a project. Environmental and cultural resources compliance costs are considered project costs. These costs will be considered in the ranking of applications.

Under no circumstances may an applicant begin any ground-disturbing activities (e.g., grading, clearing, and other preliminary activities) on a project before environmental and cultural resources compliance is complete and Reclamation explicitly authorizes work to proceed. This pertains to all components of the proposed project, including those that are part of the applicant's non-Federal cost-share. Reclamation will provide a successful applicant with information once such compliance is complete. An applicant that proceeds before environmental and cultural resources compliance is complete may risk forfeiting Reclamation funding under this FOA. Costs incurred for ground-disturbing activities performed prior to award are not eligible for reimbursement or cost share unless the recipient can provide documentation

that Federal environmental and cultural resource clearances were obtained for the Project prior to the commencement of the activities.

F.2.2. Approvals and Permits

Recipients shall adhere to Federal, state, territorial, tribal, and local laws, regulations, and codes, as applicable, and shall obtain all required approvals and permits. Recipients shall also coordinate and obtain approvals from site owners and operators.

F.2.3. Requirements for Agricultural Operations under P.L. 11-11, Section 9504(a)(3)(B)

In accordance with Section 9504(a)(3)(B) of P.L. 111-11, grants and cooperative agreements under this authority will not be awarded for an improvement to conserve irrigation water unless the applicant agrees to both of the following conditions:

- Not to use any associated water savings to increase the total irrigated acreage of the applicant
- Not to otherwise increase the consumptive use of water in the operation of the applicant, as determined pursuant to the law of the State in which the operation of the applicant is located

F.2.4. Title to Improvements P.L. 111-11, Section 9504(a)(3)(D)

If the activities funded through an agreement awarded under this FOA result in a modification to a portion of a federally owned facility that is integral to the existing operations of that facility, the Federal government shall continue to hold title to the facility and the improvements thereto. Title to improvements, P.L. 111-11, Section 9504(a)(3)(D) that are not integral to existing water delivery operations shall reside with the project sponsor.

F.3. Reporting—Requirements and Distribution

If the applicant is awarded an agreement as a result of this FOA, the applicant will be required to submit the following reports during the term of the agreement.

F.3.1. Financial Reports

Recipients will be required to submit a fully completed form SF-425 Federal Financial Report on at least a semi-annual basis and with the final performance report. The SF-425 must be signed by a person legally authorized to obligate the recipient.

F.3.2. Interim Performance Reports

The specific terms and conditions pertaining to the reporting requirements will be included in the financial assistance agreement.

Interim performance reports submitted on at least a semi-annual basis, that include the following information:

- A comparison of actual accomplishments to the milestones established by the financial assistance agreement for the period
- The reasons why established milestones were not met, if applicable
- The status of milestones from the previous reporting period that were not met, if applicable
- Whether the project is on schedule and within the original cost estimate
- Any additional pertinent information or issues related to the status of the project

F.3.3. Final Performance Reports

Recipients will be required to submit a final performance report encompassing the entire period of performance. The final performance report must include, but is not limited to, the following information:

- Whether the Project objectives and goals were met
- Discussion of the benefits achieved by the project, including information and/or calculations supporting the benefits
- How the project improves long-term resiliency to drought
- How the project demonstrates collaboration, if applicable
- Photographs documenting the Project are also appreciated

Note: Reclamation may print photos with appropriate credit to the applicant. Also, final reports are public documents and will be made available on Reclamation's website

F.4. Releasing Applications

Following awards of funding, Reclamation may post all successful applications on the Reclamation website after conducting any redactions determined necessary by Reclamation, in consultation with the recipient.

Section G. Agency Contacts

There will be no pre-application conference. Organizations or individuals interested in submitting applications in response to this FOA may direct questions to the Reclamation personnel identified below.

G.1. Reclamation Financial Assistance Contact

Questions regarding application and submission information and award administration may be submitted to the attention of Darren Olson, Grants Management Specialist, as follows:

By mail: Bureau of Reclamation
Financial Assistance Support Section
Attn: Mr. Darren Olson
Mail Code: 84-27814
P.O. Box 25007
Denver, CO 80225

By email: dolson@usbr.gov

By phone: 303-445-3697

G.2. Reclamation Program Coordinator Contact

Questions regarding applicant and project eligibility and application review may be submitted to the attention of Josh German, WaterSMART Grants Program Coordinator, or Robin Graber, Program Analyst, as follows:

By mail: Bureau of Reclamation
Water Resources and Planning Division
Attn: Mr. Josh German
P.O. Box 25007, MS 84-51000
Denver, CO 80225

By e-mail: jgerman@usbr.gov

By phone: 303-445-2839

OR

By mail: Bureau of Reclamation
Water Resources and Planning Division
Attn: Ms. Robin Graber
P.O. Box 25007, MS 84-51000
Denver, CO 80225

By e-mail: rgraber@usbr.gov

By phone: 303-445-2764

Section H. Other Information

The following is a brief overview of NEPA, NHPA, and ESA. This information is only relevant to proposals that include measurement, monitoring and field work. While these statutes are not the only environmental laws that may apply to water marketing strategies, they are the Federal laws that most frequently do apply. Compliance with all applicable environmental laws will be initiated by Reclamation concurrently, immediately following the initial recommendation to award a financial assistance agreement under this FOA. The descriptions below are intended to provide you with information about the environmental compliance issues that may apply to your projects and to help you budget appropriately for the associated compliance costs.

H.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 FOA, 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:

Some projects may fit within a recognized **Categorical Exclusion (CE)** to NEPA (i.e., one of the established categories of activities that generally do not have significant impacts on the environment). If a project fits within a CE, no further NEPA compliance measures are necessary. Use of a CE can involve simple identification of an applicable **Interior CE** or documentation of a **Reclamation CE** using a **Categorical Exclusion Checklist (CEC)**. If a CE is being considered, Reclamation will determine the applicability of the CE and whether extraordinary circumstances (i.e., reasons that the CE cannot be applied) exist. That process can take anywhere from 1 day to about 30 days, depending upon the specific situation.

If the project does not fit within a CE, compliance with NEPA might require preparation of an **Environmental Assessment/Finding of No Significant Impact (EA/FONSI)**. Generally, where no CE applies but there are not believed to be any significant impacts associated with the proposed action, an EA will be required. The EA is used to determine whether any potentially significant effects exist (which would trigger the further step of an **Environmental Impact Statement (EIS)**, below). If no potentially significant effects are identified, the EA process ends with the preparation of a FONSI. The EA/FONSI process is more detailed than the CE/CEC process and can take weeks or even months to complete. Consultation with other agencies and public notification are part of the EA process.

The most detailed form of NEPA compliance, where a proposed project has potentially significant environmental effects, is completion of an **EIS** and **Record of Decision (ROD).** An EIS requires months or years to complete, and the process includes considerable public involvement, including mandatory public reviews of draft documents. It is not anticipated that projects proposed under this program will require completion of an EIS.

During the NEPA process, potential impacts of a project are evaluated in context and in terms of intensity (e.g., will the proposed action affect the only native prairie in the county? Will the proposed action reduce water supplied to a wetland by 1 percent? Or 95 percent?). The best source of information concerning the potentially significant issues in a project area is the local Reclamation staff that has experience in evaluating effects in context and by intensity.

Reclamation has the sole discretion to determine what level of environmental NEPA compliance is required. If another Federal agency is involved, Reclamation will coordinate to determine the appropriate level of compliance. You are encouraged to contact your regional or area Reclamation office. See www.usbr.gov/main/offices.html with questions regarding NEPA compliance issues. You may also contact the Program Coordinator for further information (*see Section G. Agency Contacts*).

H.2. National Historic Preservation Act

To comply with Section 106 of the NHPA, Reclamation must consider whether a proposed project has the **potential to cause effects to historic properties**, before it can complete an award under this FOA. Historic properties are cultural resources (historic or prehistoric districts, sites, buildings, structures, or objects) that qualify for inclusion in the National Register of Historic Places. In some cases, water delivery infrastructure that is over 50 years old can be considered a historic property that is subject to review.

If a proposal is selected for initial award, the recipient will work with Reclamation to complete the Section 106 process. Compliance can be accomplished in several ways, depending on how complex the issues are, including:

- If Reclamation determines that the proposed project does not have the potential to cause effects to historic properties then Reclamation will document its findings and the Section 106 process will be concluded. This can take anywhere from a couple of days to one month.

- If Reclamation determines that the proposed project could have effects on historic properties, a multi-step process, involving consultation with the State Historic Preservation Officer and other entities, will follow. Depending on the nature of the project and impacts to cultural resources,

consultation can be complex and time consuming. The process includes:

- A determination as to whether additional information is necessary
- Evaluation of the significance of identified cultural resources
- Assessment of the effect of the project on historic properties
- A determination as to whether the project would have an adverse effect and evaluation of alternatives or modifications to avoid, minimize, or mitigate the effects
- A Memorandum of Agreement is then used to record and implement any necessary measures. At a minimum, completion of the multi-step Section 106 process takes about two months.

- Among the types of historic properties that might be affected by projects proposed under this FOA are **historic irrigation systems** and **archaeological sites.** An irrigation system or a component of an irrigation system (e.g., a canal or headgate) is more likely to qualify as historic if it is more than 50 years old, if it is the oldest (or an early) system/component in the surrounding area, and if the system/component has not been significantly altered or modernized. In general, proposed projects that involve ground disturbance, or the alteration of existing older structures, are more likely to have the potential to affect cultural resources. However, the level of cultural resources compliance required, and the associated cost, depends on a case-by-case review of the circumstances presented by each proposal.

You should contact your State Historic Preservation Office and your local Reclamation office's cultural resources specialist to determine what, if any, cultural resources surveys have been conducted in the project area. See www.usbr.gov/cultural/crmstaff.html for a list of Reclamation cultural resource specialists. If an applicant has previously received Federal financial assistance it is possible that a cultural resources survey has already been completed.

H.3. Endangered Species Act

Pursuant to Section 7 of the ESA, each Federal agency is required to consult with the U.S. Fish and Wildlife Service (USFWS) or the National Oceanic and Atmospheric Administration (NOAA) Fisheries Service to ensure any action it authorizes, funds, or carries out is not likely to **jeopardize the continued existence of any endangered or threatened species or destroy or adversely modify any designated critical habitat.**

Before Reclamation can approve funding for the implementation of a proposed project, it is required to comply with Section 7 of the ESA. The steps necessary for ESA compliance vary, depending on the presence of endangered or threatened species and the effects of the proposed project. A rough overview of the possible course of ESA compliance is:

- If Reclamation can determine that there are no endangered or threatened species or designated critical habitat in the project area, then the ESA review is complete and no further compliance measures are required. This process can take anywhere from one day to one month.

- If Reclamation determines that endangered or threatened species may be affected by the project, then a **Biological Assessment** must be prepared by Reclamation. The Biological Assessment is used to help determine whether a proposed action may affect a listed species or its designated critical habitat. The Biological Assessment may result in a determination that a proposed action **is not likely to adversely affect** any endangered or threatened species. If the USFWS/NOAA Fisheries Service concurs in writing, then no further consultation is required and the ESA compliance is complete. Depending on the scope and complexity of the proposed action, preparation of a Biological Assessment can range from days to weeks or even months. The USFWS/NOAA Fisheries Service generally respond to requests for concurrence within 30 days.

- If it is determined that the project **is likely to adversely affect listed species**, further consultation (**formal consultation**) with USFWS or NOAA Fisheries Service is required to comply with the ESA. The process includes the creation of a **Biological Opinion** by the USFWS/NOAA Fisheries Service, including a determination of whether the project would **jeopardize** listed species and, if so, whether any **reasonable and prudent** alternatives to the proposed project are necessary to avoid jeopardy. Nondiscretionary **reasonable and prudent measures** and **terms and conditions** to minimize the impact of incidental take may also be included. Under the timeframes established in the ESA regulations, the Biological Opinion is issued within 135 days from the date that formal consultation was initiated, unless an extension of time is agreed upon.

The time, cost, and extent of the work necessary to comply with the ESA depends upon whether endangered or threatened species are present in the project area and, if so, whether the project might have effects on those species significant enough to require formal consultation.

ESA compliance is often conducted parallel to the NEPA compliance process and, as in the case of a CEC, documented simultaneously. The best source of information concerning the compliance with the ESA in a particular project area is the local Reclamation environmental staff that can be helpful in determining the

presence of listed species and possible effects that would require consultation with the USFWS or NOAA Fisheries Service. Contact your regional or area Reclamation office, www.usbr.gov/main/offices.html with questions regarding ESA compliance issues.

Appendix A: Benefit Quantification and Performance Measures

The following information is provided to provide applicants additional guidance on pre- and post-project benefit quantification.

All WaterSMART Grant applicants are required to propose a method (or "performance measure") of quantifying the actual benefits of their project once it is completed. Actual benefits are defined as water actually conserved or better managed, as a direct result of the project. A provision will be included in all assistance agreements with WaterSMART Grant recipients describing the performance measure and requiring the recipient to quantify the actual project benefits in their final report to Reclamation upon completion of the project.

Quantifying project benefits is an important means to determine the relative effectiveness of various water management efforts, as well as the overall effectiveness of WaterSMART Grants.

The following information is intended to provide applicants with examples of some acceptable methods that may be used to estimate benefits pre-project and to verify benefits upon completion of the project. **However, the following is not intended to be an exhaustive list of acceptable performance measures. Applicants are encouraged to propose alternatives to the measures listed below if another measure is more effective for the particular project.**

Reclamation understands that, in some cases, baseline information may not be available, and that methods other than those suggested below may need to be employed. If an alternative performance measure is suggested, the applicant must provide information supporting the effectiveness of the proposed measure as it applies to the proposed project.

Performance Measure A: Projects with Quantifiable Water Savings

The methods included below are examples that may be helpful in estimating the water conservation that will be realized upon completion of the proposed project and to verify this amount post-project.

Performance Measure A.1: Canal Lining/Piping

Canal lining or piping projects are implemented to decrease or eliminate canal water seepage and evapotranspiration. **The following information may be helpful in estimating the water conservation that will be realized upon completion of the proposed project and to verify this amount post-project.**

Pre-project estimation of benefits:

To calculate potential water savings, physical measurements of losses from seepage, evaporation, and/or transpiration are necessary. If evaporation will not be mitigated by the project (e.g. canal lining), evaporative losses should be estimated and deducted from the estimated water conservation. Two testing procedures which can be used are listed below:

- **Ponding tests:** Conduct ponding tests along canal reaches proposed for lining or piping. At least two tests, one early and one late season, are suggested since seepage rates vary significantly during the irrigation season. Multiple years of data are also suggested. Ponding test results should be provided in terms of both acre-feet per year (AFY) of seepage and cubic feet of seepage per square feet of canal surface per day (cfs/sf/day).

- **Inflow/outflow testing:** Measure the flow rate of water flowing in and out of the canal reach. At least two tests, one early and one late season, are suggested since seepage rates vary significantly during the irrigation season. Multiple years of data are also suggested. Inflow/outflow test results should be provided in terms of both AFY of seepage and cubic feet per second of seepage per cubic feet per second of canal flow per mile of canal (cfs/sf/mile).

If ponding or inflow/outflow tests cannot be performed, estimated historical seepage and evaporation rates for the canal reach may be based on a combination of soils/geology conditions, flow rates, diversion rates, irrigation methods and crops, weather information, and historical knowledge. Soils/geologic conditions can not represent the sole source for estimating seepage losses, but can be included as support for an estimate. Evaporation data are available at http://nws.noaa.gov/oh/hdsc/PMP_related_studies/TR34.pdf. A discussion should be included on why ponding or inflow/outflow tests cannot be performed that also includes a thorough description of the logic used in the estimation calculations performed.

Post-project methods for quantifying the benefits of canal lining or piping projects:

- Using tests listed above, compare pre-project and post-project test results to calculate water savings. For canal lining projects, evaporation should be calculated based on weather data and then subtracted from the total loss measured by testing. For piping projects, it is typically assumed all seepage and evaporation are eliminated with most types of pipe materials.

- If ponding or inflow/outflow tests cannot be performed, benefits can be calculated by comparing the estimated historical seepage and evaporation rates for the canal reach to the post-project seepage and evaporation (documentation of proposed method of measuring or estimating post-project seepage and evaporation should be provided).

- Results can be verified using a ratio of historical diversion and delivery rates if adequate data exists. The adequacy of the data should be discussed with regard to methods used to measure diversion and delivery quantities. This type of verification should also include a comparison of historical canal efficiencies and post-project canal efficiencies. For example, if an irrigation district needs to divert 6 acre-feet of water to deliver 2 acre-feet of water to a field through the canal pre-project, this would be a 33% efficiency:

$$\left[100\% - \frac{2\ acrefeet}{6\ acrefeet} \times 100\%\right] = 33\%\ \text{efficiency}$$

  If post-project, the irrigation district only needs to divert 4 acre-feet of water through the canal to deliver the 2 acre-feet, efficiency would improve by 17% to 50%:

$$\left[100\% - \frac{2\ acrefeet}{4\ acrefeet} \times 100\%\right] = 50\%\ \text{efficiency}$$

- Record reduction in water purchases by shareholders and compare to historical water purchases. Using this method would require consideration and explanation of other potential reasons for decreased water purchases (e.g. precipitation, temperature, etc.).

For more information regarding canal seepage monitoring and verification, visit www.agwatercouncil.org/images/stories/monitoring_and_verification_canal_seepage.pdf.

Performance Measure A.2: Measuring Devices

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

Measuring Devices: A.2.a. Municipal Metering

For projects that install or replace existing municipal meters, the applicant should consider the following:

- Whether the project includes new meters where none existed previously or replaces existing meters
- Whether the project includes individual water user meters, main line meters, or both
- If the project replaces existing individual water user meters with new meters, whether new technologies (automatic meter reading (AMR) or advanced metering infrastructure (AMI) meters) will be employed
- If main line meters are included, whether system leak detection and leak reduction will be improved

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

The following information about municipal meter installation and replacement may be helpful in estimating the water conservation that will be realized upon completion of the proposed project and to verify this amount post-project:

- Municipal water delivery meters are typically installed for each water user as well as at strategic locations within the distribution system to measure production, supply, and/or storage. Accurate measurement allows for demand assessments, customer billing, diagnostic testing, locating and quantifying leakage, and other management needs.
- Significant water savings can be achieved when meters are installed where none existed previously. In the case of individual water user metering, most customers use significantly less water when billed at a usage rate; and especially so when a tiered rate is applied (i.e., higher rates for higher use). Installing new meters within the distribution system can also result in savings through improved meter accuracy and leak detection/correction. Replacing existing meters can also result in water savings when new technologies are employed. For example, AMR and AMI devices provide real time measurement to the operator and, in some cases, to the customer as well. This allows for improved management by the operator, more

conscientious use by the customer, and improved leakage detection by both.

- Quantifying savings associated with meter installation and/or replacement requires analysis of pre- and post-installation measurements from existing meters at strategic locations within the system. If installing meters will result in conserved water, please provide support for this determination (e.g. studies, previous projects, etc.). A logical scheme should be developed that compares pre- and post-installation flow quantities and that accounts for leakage and other considerations. The site-specific water savings verification plan should be as detailed as possible and clearly state all assumptions and the relative level of accuracy expected. In addition, please provide details underlying any assumptions being made in support of water savings estimates (e.g. residential users will reduce use once a more advanced billing structure is imposed).

Measuring Devices: A.2.b. Irrigation Metering

Measuring devices that may be installed can include, but is not limited to, the following:

- Flow meters (current or acoustic)
- Weirs
- Flumes
- Meter gates
- Submerged orifices

Potential benefits from improved irrigation delivery system measurement include:

- Quantification of system losses between measurement locations
- Quantification of waste way (spill) flows
- Accurate billing of customers for the actual amount of water delivered
- Facilitation of accurate and equitable distribution of water within a district
- Allow for implementation of future system improvements such as seepage reduction, remote flow monitoring, and canal operation automation projects

The following performance measures may be helpful in estimating the water conservation that will be realized upon completion and to verify this amount post-project for improved irrigation delivery system measurement.

Pre-project estimations of baseline data:

- Pre-project flows may be difficult to estimate without a measuring device in place. Ideally, temporary measurement devices or other methods to estimate flow rates may be used to estimate flow rates as accurately as possible.

- In lieu of temporary measurement devices, the applicant may be able to use data from measurement devices located elsewhere in the delivery system (if available). Otherwise, the applicant may have to rely on other historical data and/or estimates based on a combination of soils/geology, delivery data, flow data, and weather data.

Post-project methods for quantifying the benefits of projects to install measuring devices:

- Compare post-project water measurement (deliveries, diversions, and waste/spills) data to pre-project data or estimates—taking into account other factors which may have cause changes

- Survey users to determine utility of the devices for decision making

- Present how measurement devices were used to identify water losses which were previously unknown and how these will be addressed

- Document the benefits of any rate structure changes made possible by the installation of measuring devices (e.g., if districts that convert from non-metered to metered deliveries are able to convert from billing water users at a flat rate to billing for actual water use using a volumetric or tiered water pricing structure)

Performance Measure A.3: SCADA and Geographic Information Systems (GIS)

Proposals may involve installing or expanding a SCADA or combined SCADA/GIS system that monitors flows in an individual district or in a basin that includes several districts. SCADA systems provide water managers with real-time data on the flow rates and volumes of water at key points within an irrigation water delivery system. Access to such data allows water managers to make accurate and timely deliveries of water, reducing over-deliveries and spillage at the end of the canal. SCADA/GIS systems can provide water users with real time delivery data to promote improved on-farm efficiencies.

For projects that install or expand a SCADA and/or GIS system, the applicant should consider the following:

- How SCADA or SCADA/GIS implementation will differ from pre-project operations in terms of how improved data availability will be incorporated into daily operational decisions

- How the SCADA or SCADA/GIS systems will be maintained once implemented. Discuss balance of in-house expertise anticipated vs. reliance on third party service provider(s)

- The projected opportunities for improved operational efficiencies that could be realized through implementation of a SCADA or SCADA/GIS system (e.g. improved delivery equity, improved response to unanticipated events, reduced administrative spillage, and enhanced productivity of human resources)

- The response process to SCADA or SCADA/GIS failures/outages

- Applicants are encouraged to review published reports on considerations when implementing a SCADA system (e.g. Freeman, B., and C. Burt (2009), *Practical experience with state-of-the-art technologies in scada systems,* San Luis Obispo, CA).

The following performance measures may be helpful in estimating the water conservation that will be realized upon completion and to verify this amount post-project for installing a SCADA or SCADA/GIS system.

Pre-project estimations of baseline data:

- Collect data on diversions and deliveries to water users

- Collect data on waste way flows

- Document employee pre-project time spent on ditch/canal monitoring and water control

Post-project methods for quantifying benefits of SCADA or SCADA/GIS system projects:

- Calculate amount of increased carryover storage in associated reservoirs. This is a long-term measure which will be more meaningful over a period of years.

- Track and record the diversions to water users and compare to pre-project diversions. This would show results of improved management if yearly fluctuations in weather are accounted for.

- Report delivery improvements (e.g. changes in supply, duration, or frequency that are available to end users because of SCADA/GIS).

- Calculate if there was a reduction in waste way flows and, if so, how much they were reduced.

- Document other benefits such as less mileage by operators on dusty roads (which saves time and influences air quality) and less damage to canal banks.

Performance Measure A.4: Automation

Proposals may include system automaton projects aimed at *preventing or reducing* spillage from canals, or drainage capture/reuse projects focused on *intercepting* spills and redirecting them to drains, canals, or reregulation reservoirs for reuse.

For projects that automate a system, the applicant should consider the following:

- The rationale of long-term automation plans (e.g. system-wide project vs. incremental implementation)

- Whether automation at given sites will result in heightened operational issues in other parts of the system (e.g. passing of supply/demand mismatches downstream)

- How automation technologies will be maintained (e.g. discuss balance of in-house expertise anticipated vs. reliance on third party service provider[s])

- The anticipated net benefits of implementing an automation project

- Applicants are encouraged to review published reports on considerations when implementing an automation system (e.g. Freeman, B., and C. Burt (2009), *Practical experience with state-of-the-art technologies in scada systems*, Irrigation Training and Research Center (ITRC), California Polytechnic State University (Cal Poly), San Luis Obispo, California).

The following performance measures may be helpful in estimating the water conservation that will be realized upon completion and to verify this amount post-project for automating delivery system components.

Pre-project estimations of baseline data:

- Establish baseline data by measuring existing spillage or document historical spillage with existing data. A measuring device should be positioned to measure spillage losses. To account for temporal variations, a minimum of a one-year history of continuous pre-project measurements is desirable for future comparison to post-project water usage. Spillage volumes can vary substantially between wet and dry years, operational changes, etc.; therefore, some multi-year estimates of spillage are preferred.

- Track pre-project water diversions using district diversion records, supplier diversion records, and/or district-recorded delivery records. Spillage estimates may be based on these data in some cases.

Post-project methods for quantifying benefits of spillage reduction projects:

- Measure spillage losses post-project and compare to pre-project data. Gather enough data to account for seasonal and temporal variations.

- Track post-project changes in the amount of water diverted and compare to pre-project diversion data.

- Compare estimated historical spills from district/project boundaries to post-project spills.

- Report specific annual volume changes to spills, diversions, or deliveries due to system automation.

Performance Measure No. A.5: Drain and Spill Water Reuse Projects

Drain and spill water reuse can be a district-level or regional conservation effort that consists of recovering irrigation water from drains and returning it to the water supply system for delivery to users.

Several types of projects can focus on drainage and reuse. Examples include:

- Pump stations with constant flow rates

- Variable speed pump stations with or without SCADA controls

- Storage reservoirs with pump stations at constant flow rates

- Storage reservoirs with variable speed pump stations and SCADA controls

The following performance measures may be helpful in estimating the water conservation that will be realized upon completion and to verify this amount post-project for drainage reuse projects:

Pre-project estimations of baseline data:

- A measuring device should be positioned to measure drain water losses.
- To account for temporal variations, a minimum of a one-year history of pre-project measurements is desirable for future comparison to post-project water usage.
- Drainage volumes can vary substantially between wet and dry years, as a function of operations, etc.. Therefore, some multi-year measurements of drain water losses may be necessary.

Post-project methods for quantifying benefits of drainage reuse projects:

- Measure post-project drainage flows and compare to flow data collected pre-project.
- Gather enough data to account for temporal variations.
- Take readings from measuring devices positioned to measure drain water loss. A system analysis can be done with the following calculation:

$$Drainage\ with\ project = (100\% - \%\ Reuse) \times Drainage\ without\ project$$

- Measure and record post-project water deliveries to fields, drainage water volumes entering reservoirs, and drainage water volumes recycled to fields. Compare these data to historical data.
- Survey farmers and estimate any benefits to farmers, such as improved flexibility in water management, reduction in shortages of supply to users near the end of the canal, etc. If it is not possible to quantify these benefits in acre-feet, a narrative explanation may be acceptable.

Performance Measure A.6: Landscape Irrigation Measures

Municipal water providers can promote savings in outdoor water use by encouraging turf removal and installation of Smart irrigation controllers and high-efficiency irrigation nozzles (sprinkler heads). This is typically accomplished through rebate or direct installation programs.

Landscape Irrigation Measures: A.6.a. Turf Removal

For turf removal projects, the applicant should consider the total estimated quantity of turf to be removed, the estimated historical annual average quantity of water applied per unit area of turf, and the estimated amount of water to be applied to any replacement landscape vegetation.

Pre-project estimations of baseline data:

The historical average amount of water applied for turf irrigation should be estimated based on actual water consumption data or weather-based theoretical irrigation requirement estimates. Potential methods include the following:

- *Dedicated meter data.* Municipal water delivery entities often have users where dedicated irrigation meters exist (e.g., parks, home owners' associations, and golf courses). If so, metered water use can be divided by the irrigated area to calculate the average annual irrigation rate per unit area of turf. The greater the number of years of data used, the better the averages should be with regard to varying weather conditions. Also, when using this information, consider that parks and golf courses typically irrigate more efficiently relative to residential irrigation, so the actual turf removal savings for all types of users would be expected to be higher.

- *Winter/summer use data.* In the absence of dedicated irrigation meter data and where irrigation ceases during winter months, summer versus winter water use data can be compared to estimate irrigation use. This can be analyzed for a sample of users and combined with an estimate of the total area irrigated. An average turf irrigation rate can be calculated.

- *Theoretical irrigation requirement.* In areas where winter irrigation occurs and dedicated irrigation meter data are not available, weather data can be used to estimate theoretical irrigation demand. These calculations consider reference evapotranspiration (ET) values from local weather stations, a crop coefficient for the type of grass, and an assumed average irrigation efficiency rate.

- *Assumed domestic use rate.* An alternative method for calculating theoretical irrigation demand subtracts the assumed domestic (indoor) water use rates from total use. Domestic water use can be estimated based on household size and an assumed per person indoor usage rate. The age of the community and existence of high-efficiency appliances and fixtures should be considered in the per-person domestic use rate. A thorough explanation relating the source of the estimated domestic use percentage to the users in the turf-removal area should be supplied.

Post-project methods for quantifying benefits of turf removal projects:

- Site audits can be performed to measure the amount of turf removed at each location and report on the water use for any vegetation which was placed in the area were turf was removed. The water conservation per site can be calculated using the pre-project turf irrigation rate and the measured area of turf removed minus estimated water use of any replacement landscape vegetation.

- Before and after water use data for each site should be evaluated using at least one year of post-project data. Weather conditions for the pre- and post-project data evaluation periods should be considered and adjustments should be made if conditions were significantly different during the pre- and post-periods.

- The project total savings should be calculated by summing the individual site savings.

Landscape Irrigation Measures: No. A.6.b. Smart Irrigation Controllers

A Smart irrigation controller automatically adjusts the amount of irrigation water applied to landscaped areas based on weather or soil moisture conditions. Weather based controllers receive weather information from either onsite sensors or from remote weather stations via radio, pager, or Internet signals. Soil moisture based controllers receive soil moisture information from one or more onsite sensors. Smart controllers have the potential to reduce landscape irrigation water use in situations where the landscape was initially being over-irrigated. In some cases, installation of Smart controllers has resulted in an increase in water use in situations where the landscape was initially being under-irrigated. For this reason, it is important to identify landscapes which are being over-irrigated prior to installation of a Smart controller.

The following performance measures may be helpful in estimating the water conservation that will be realized upon completion and to verify this amount post-project for installing Smart controllers:

Pre-project estimations of baseline data:

The historical average annual amount of water applied for landscape irrigation for each project site should be estimated based on actual water use data. Note that weather-based theoretical irrigation requirement estimates are not suitable for baseline estimations as this is typically the method implemented by the Smart controller for estimating irrigation times. Ideally, post-project the landscape will be being irrigated at this rate. Suggested methods include the following:

- Site audits should be conducted at each location within the project to measure landscape area and estimate the irrigation system's efficiency. Site audit-based recommendations for system efficiency improvement are strongly recommended.

- The historical average annual landscape irrigation rate per unit area should be estimated using the dedicated meter data, winter/summer use data, or assumed domestic use rate methods discussed under the turf removal section.

- The total annual average water irrigation amount for each site should be calculated as the product of the landscape area and annual average application rate. These can be summed to estimate the water conservation for the project.

Post-project suggested methods for quantifying benefits of ET controllers:

Total project water savings can be estimated as the difference in annual pre- and post-project total metered water use or the difference in estimated annual outdoor water use. For the latter, irrigation use should be calculated at each site based on pre- and post-project meter data using the methods described under turf removal. Regardless of whether total metered usage or estimated outdoor use is used, weather conditions during the data periods should be considered (as also discussed under turf removal).

- Compare annual meter reading totals or estimated outdoor use prior to Smart controller installation and post installation for each site and sum all for project total.

- If results are required earlier, the calculations can also be performed monthly.

Landscape Irrigation Measures: A.7.c. High-Efficiency Nozzles

High-efficiency landscape irrigation nozzles (sprinkler heads) apply water more uniformly and at a lower rate relative to conventional type nozzles. Improved application uniformity reduces the need to over-irrigate some areas in order to eliminate brown spots in turf. The lower application rate reduces runoff and while the stronger stream of water is less effected by wind. Note that the lower application rate can require that irrigation times be increased in order to adequately irrigate the landscape.

Pre-project estimations of baseline data

Total irrigation water use for the project should be estimated using the same methods described above for turf removal and Smart controllers.

Post-project suggested methods for quantifying benefits of ET controllers:

Site audits should be conducted to verify correct installation, and water savings can be verified using the same methods as described above for Smart controllers (i.e. pre-project minus post-project total use or irrigation use from meter data). Site audits should include evaluation of irrigation system operations to verify adjustments have been made to compensate for the new nozzles.

Performance Measure B: Projects with Hydropower Benefits

The performance measures included below are examples that may be helpful in estimating a pre-project energy baseline and post-project energy benefits for energy projects that are expected to increase the use of hydropower in the management and delivery of water.

For hydropower projects, applicants should address the following as part of the performance measures they submit with their applications.

- Explain the methodology for calculating project hydropower capacity and generation benefits.

- Include an estimate of incremental hydropower capacity (measured in kW) and generation (measured in kWh) resulting from the project.

- Describe what loads will be served by project hydropower generation.