

SUBMIT OPTION SUBMITTAL FORM BY:

1. EMAIL TO: COLORADORIVERBASINSTUDY@USBR.GOV

2. U.S. MAIL TO: BUREAU OF RECLAMATION, ATTENTION MS. PAM ADAMS, LC-2721, P.O. BOX 61470, BOULDER CITY, NV 89006-1470

3. FACSIMILE TO: 702-293-8418

Option Submittal Form

Contact Information (optional):

Keep my contact information private.

Contact Name: _____	Title: _____
Affiliation: _____	
Address: _____	
Telephone: _____	E-mail Address: _____

Date Option Submitted: February 1, 2012

Option Name:

Leveraging utility scale water efficiency programs to support local and regional environmental enhancement using the Conserve to Enhance mechanism

Description of Option:

Conserve to Enhance is an innovative financial mechanism that leverages water conservation actions by individual water users to fund environmental enhancement projects such as flow augmentation and riparian restoration. Working with water utilities and NGOs, Conserve to Enhance tracks water use over time and enables donation of the monetary value of conserved water directly to an environmental enhancement fund. By connecting water conservation to environmental enhancement, Conserve to Enhance provides a new, unique motivation for water conservation and raises awareness about water resources-related environmental benefits.

The program mechanism is simple. Water users who enroll in the program implement water efficiency practices at their home or business. Water savings are tracked by the utility or by a community NGO in cooperation with the utility. Any cost savings on the participating water user's bill compared to baseline, pre-enrollment water use is eligible for voluntary donation to an environmental enhancement fund. Conserve to Enhance donations are pooled to create a funding source large enough to implement riparian restoration, stream augmentation/in-stream flow, green infrastructure, or other water for nature projects. At the same time, the program encourages participants to use water more efficiently, stretching current supplies.

Location: Describe location(s) where option could be implemented and other areas that the option would affect, if applicable. Attach a map, if applicable.

This option could be implemented anywhere in the Colorado River basin at either the individual community or a regional scale. The University of Arizona Water Resources Research Center provides resources and support to communities interested in implementing Conserve to Enhance.

Quantity and Timing: Roughly quantify the range of the potential amount of water that the option could provide over the next 50 years and in what timeframe that amount could be available. If option could be implemented in phases, include quantity estimates associated with each phase. If known, specify any important seasonal (e.g., more water could be available in winter) and/or frequency (e.g., more water could likely be available during above-average hydrologic years) considerations. If known, describe any key assumptions made in order to quantify the potential amount.

The amount of water made available by the implementation of Conserve to Enhance depends on the number of communities that adopt the program and the number of water customers in those communities that sign up to participate. We estimate between 5% and 10% of water users in a given community will readily participate in Conserve to Enhance on a voluntary basis. Early results from a Conserve to Enhance pilot in Tucson, AZ indicate that at full implementation, Conserve to Enhance could result in approximately 600 acre feet per year of water savings at 5% participation (Tucson Water serves approximately 226,000

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connections). The amount of water savings across the basin will vary based on the number and size of communities, but could easily result in 1,000s of acre feet in savings per year with the participation of only a few large water providers/users. Savings will ramp up over time as more communities adopt Conserve to Enhance. Depending on the water efficiency practices adopted by participating water users, there may be seasonal variability in water savings, but significant variability is unlikely.

In addition to water savings, Conserve to Enhance also generates donations to fund environmental enhancement projects, such as flow augmentation. Early results from the Conserve to Enhance pilot in Tucson, AZ indicate that at full implementation, Conserve to Enhance could generate approximately \$400,000 per year in donations (\$3 per participant per month, based on 5% participation of 226,000 connections). Funds resulting from Conserve to Enhance donations may also be used to finance projects that will leverage additional water savings, such as agricultural irrigation efficiency projects. If funds are used in this way, additional water savings and flow augmentation benefits are possible.

Additional Information

Technical Feasibility: Describe the maturity and feasibility of the concept/technology being proposed, and what research and/or technological development might first be needed.

Conserve to Enhance is a developed program that is ready to be implemented in interested communities. The program is the result of a long-term environmental water needs research program at the University of Arizona Water Resources Research Center (WRRC), which has been funded in large part by the Bureau of Reclamation. A pilot program is underway in Tucson, AZ to further evaluate and improve the program. The WRRC has prepared a program implementation guide and other outreach materials and has staff available to provide technical assistance to interested communities. Conserve to Enhance is a feasible strategy in all Colorado River Basin communities, but is easier to implement in communities that have modern utility billing and accounting software and an interest in innovative water efficiency/conservation programs. It is also most appropriate in places with a clearly defined environmental enhancement projects in need of funding support. Program scoping and implementation planning will be required in each community interested in implementing the program. Each community is unique, with different opportunities and challenges related to Conserve to Enhance implementation. Resources are available to assist with this process.

Costs: Provide cost and funding information, if available, including capital, operations, maintenance, repair, replacement, and any other costs and sources of funds (e.g., public, private, or both public and private). Identify what is and is not included in the provided cost numbers and provide references used for cost justification. Methodologies for calculating unit costs (e.g., \$/acre-foot or \$/million gallons) vary widely; therefore, do not provide unit costs without also providing the assumed capital and annual costs for the option, and the methodology used to calculate unit costs.

Costs of implementing Conserve to Enhance are limited because the program can easily integrate with existing utility water efficiency/conservation programs. During program planning, development, and implementation grant funding may be required to support NGO and utility involvement. NGO funding is estimated at up to \$50,000 during this phase of Conserve to Enhance. Utility staff expenses are generally supported by existing water conservation budgets. There may be an expense to update utility's billing systems to support the Conserve to Enhance mechanism. These expenses are highly variable depending of the sophistication of a utility's billing system. Costs range from a small contribution of person-hours in house to as much as \$200,000 if significant re-programming of billing software is required. Assuming the high end of these cost estimates (\$250,000 total to implement Conserve to Enhance), a program in Tucson, AZ with 5% participation and approximately 600 acre-feet in water savings per year would cost approximately \$415 per acre-foot of water saved in its first year. For utilities with sophisticated billing systems, costs for adding Conserve to Enhance to billing are likely modest, estimated as low as \$10,000 in person hours or contractor costs. In this scenario, Conserve to Enhance would carry an initial establishment cost of approximately \$100 per acre foot of water savings in the first year. Over ten years the cost per acre-foot is reduced to \$10 - \$42 per acre-foot of water conserved, depending on establishment costs.

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Once Conserve to Enhance is established, most functions of the program can be supported by existing utility conservation staff and a small administrative fee on donations, e.g. 10%.

Permitting: List the permits and/or approvals required and status of any permits and/or approvals received.

No permits are required to implement Conserve to Enhance. Water utility participation is needed. Flow augmentation projects receiving funds from Conserve to Enhance may require permits, water rights, or other approvals. Participation of private water utilities may require regulatory approval from the state utility regulator.

Legal / Public Policy Considerations: Describe legal/public policy considerations associated with the option. Describe any agreements necessary for implementation and any potential water rights issues, if known.

Conserve to Enhance utilizes a program model based on existing utility water efficiency programs and common check box donation schemes, combining these approaches to create a new, unique approach to motivate participation in water efficiency programs and benefit the environment. Therefore, the proposed option does not require any special legal or policy approvals or changes. In communities where Conserve to Enhance is implemented as a partnership between utilities and NGOs, cooperative agreements or memorandums of understanding between parties may be required. Where environmental enhancement funds generated through the Conserve to Enhance mechanism are collected by a water utility, an agreement must be in place to distribute these donations to the environmental enhancement fund. If Conserve to Enhance funds are used for flow augmentation projects, water rights issues may be a factor. These issues are highly place dependent. Conserve to Enhance donations can also be used to support other project types, such as riparian restoration and green infrastructure/storm water mitigation, which are less likely to have water rights issues.

Implementation Risk / Uncertainty: Describe any aspects of the option that involves risk or uncertainty related to implementing the option.

The primary risk associated with Conserve to Enhance is poor participation in the program when it expands into new communities. It is unknown how residents in new communities will react to the Conserve to Enhance mechanism or if the environment will provide sufficient motivation for a significant number of people to improve their water efficiency. However, we think this risk can be mitigated through effective program design, promotion, and outreach. Conserve to Enhance programs should have a local oversight board and target projects that are local priorities. The oversight board provides a basis for program outreach. In addition, Conserve to Enhance should be promoted through multiple means, including bill inserts.

Reliability: Describe the anticipated reliability of the option and any known risks to supply or demand, such as: drought risk, water contamination risk, risk of infrastructure failure, etc.

Once established in new communities, Conserve to Enhance is expected to be a highly reliable approach to reducing water demand by program participants. Conserve to Enhance should also create a reliable funding source through voluntary donations. Water savings by Conserve to Enhance participants relative to baseline (program initiation) are expected to be sustained.

Water Quality: Identify key water quality implications (salinity and other constituents) associated with the option in all of the locations the option may affect.

The Conserve to Enhance mechanism has not direct impact on water quality. However, funds generated by the Conserve to Enhance mechanism may be used in some communities to implement projects to improve local water quality.

Energy Needs: Describe, and quantify if known, the energy needs associated with the option. Include any energy required to obtain, treat, and deliver the water to the defined location at the defined quality.

Energy Required	Source(s) of Energy
N/A	N/A

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Hydroelectric Energy Generation: Describe, and quantify if known, any anticipated increases or decreases in hydroelectric energy generation as a result of the option.

Location of Generation	Impact to Generation
N/A	N/A

Recreation: Describe any anticipated positive or negative effects on recreation.

Location(s)	Anticipate Benefits or Impacts
Basin-wide	Funds generated by Conserve to Enhance may be used to benefit recreation, i.e. through improved in-stream flows resulting in improved habitat quality, aesthetics, fishing, boating, etc.

Environment: Describe any anticipated positive or negative effects on ecosystems within or outside of the Colorado River Basin.

Location(s)	Anticipated Benefits or Impacts
Basin-wide	A primary goal of Conserve to Enhance is to provide funding for local and regional environmental enhancement projects. Specific enhancement projects supported by Conserve to Enhance are selected by the communities where the program is implemented, but could include in-stream flow projects, riparian restoration, and new and improved green infrastructure to reduce storm water impacts. Conserve to Enhance also increases awareness of water-related natural resources issues and knowledge of the water system as a whole.

Socioeconomics: Describe anticipated positive or negative socioeconomic (social and economic factors) effects.

Conserve to Enhance has positive social effects and is designed to be economically neutral for water users. Conserve to Enhance provides a means of linking traditional water efficiency/conservation programming with the environment. It is an opportunity to educate the public about why water conservation is important, where their water comes from, how their water use affects the environment, etc. Conserve to Enhance results in a water user that has a better understanding of the water system. Many water users do not know where their water comes from or the relationship between their drinking water and natural ecosystems. A Conserve to Enhance program focused on improving instream flows in a river running through a city, for example, provides the opportunity to educate water users about the source of their water – the river – and how water conservation links to a desirable environmental outcome – improved stream flows in the river.

Because Conserve to Enhance asks water users to voluntarily donate only the costs savings on their water bill resulting from their water conservation efforts, there is a net zero impact to a water customer's water bill. If I saved \$2 on this month's water bill relative to my baseline water use and donate this \$2, I am still only paying what I would have paid absent conservation. Also, because participation is voluntary, water users are not required to donate or in many cases can donate only a portion of their water savings, resulting in a net economic positive. There may be some initial costs for water users to install/implement water saving practices, e.g. water efficient appliances, water efficient landscaping, rainwater harvesting practices, etc.

Other Information: Provide other information as appropriate, including potential secondary benefits or considerations. Attach supporting documentation or references, if applicable.

The University of Arizona Water Resources Research Center is currently conducting outreach to share Conserve to Enhance with communities around the Colorado River Basin and identify communities interested in implementing pilot programs. Supporting documentation about Conserve to Enhance, including journal articles and other research, is available at: cals.arizona.edu/azwater/conserven2enhance