

RECLAMATION

Managing Water in the West

Request for Information

Public-Private Partnership Initiative

RFI No. R17PS00874



Mission Statements

The mission of the Department of the Interior is to protect and manage the Nation's natural resources and cultural heritage; provide scientific and other information about those resources; and honor its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities.

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.

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Public-Private Partnership (P3) Request for Information Bureau of Reclamation

1. Introduction

1.1. Purpose of this Request for Information

The United States Department of the Interior's Bureau of Reclamation (Reclamation) invites interested parties to respond to this Request for Information (RFI) regarding potential future opportunities for the design, construction, financing, operation and/or maintenance of specific Reclamation water resource projects under potential Public-Private Partnership (P3) arrangements.

The purpose of this RFI is to seek the industry's perspective and feedback on the specific projects and questions presented herein and, more generally, to provide an opportunity for industry input on the potential transaction structures for Reclamation public/private partnership projects. Interested firms and parties are strongly encouraged to submit responses with detailed comments. The information contained in the responses to this RFI will help Reclamation and other Interior bureaus steer planning and development efforts for these and other projects.

1.2. Effect of this Request for Information

This RFI is an inquiry only and is not a formal solicitation or initiation of a procurement process. Submissions will not be evaluated or scored. No contract or agreement will be entered into as a result of this RFI.

This RFI does not represent a commitment to issue a Request for Qualifications (RFQ) or a Request for Proposals (RFP) in the future, or a commitment that any subsequent procurement, if issued, will reflect any delivery approach described herein.

Submission of responses is not a prerequisite for participating in any future procurement(s). Such participation would be subject to demonstrating satisfaction of the criteria stipulated in subsequent solicitation documents. Participation in this RFI and ensuing Industry Forum, or an election not to participate, will not confer on any Respondent any preference, special designation, advantage, or disadvantage whatsoever in any subsequent procurement process related to any project described herein.

1.3. Submission Requirements

Reclamation welcomes responses to this RFI from companies, corporations, consortia or partnerships that have a potential interest in acting as developers, design-build contractors, operators, or equity investors for a P3 (Respondents).

1.4. Respondent Registration

Individuals or firms requesting a copy of the RFI are requested to register their interest in this project by electronically submitting the following information to reclamationP3@usbr.gov:

Company Name: _____
Contact Person: _____
Title of Contact Person: _____
Contact information: _____
Address: _____
Telephone: _____
Email: _____

Registered respondents shall be provided with updates on Reclamation P3 initiatives in accordance with their stated contact information.

1.5. Submissions, Questions and Comments

Respondents are asked to provide responses only to the questions indicated in Appendices A-F, together with a 1-2 page cover letter. Respondents are NOT required to address all projects or respond to all questions.

Total page count for the Response should not exceed fifty (50) pages, utilizing 12pt Arial Narrow type font, inclusive of the cover letter.

Marketing materials from the respondents are not required or encouraged as part of a written response.

Respondents shall submit the requested information in electronic form (PDF format). Please enable the Commenting or User Rights Feature on the pdf documents. Adobe Professional Version 7 or above may be used for this purpose.

Respondent's submission shall be delivered by email to reclamationP3@usbr.gov, in sufficient time so that Reclamation receives it no later than 4:00 p.m. Eastern Daylight Saving Time on **June 14, 2017.**

The 'Firm Name' and 'RFI No. R17PS00874' should be clearly indicated on the cover page of the RFI response PDF file.

Any questions concerning this RFI should be directed by email to reclamationP3@usbr.gov. Interpretation of this RFI or additional information will only be given by written amendment to this RFI from Reclamation. All clarifications and amendments to this RFI will be communicated via FedBizOpps.

1.6. Water Infrastructure and Alternative Financing Forum

A Water Infrastructure and Alternative Financing Forum (Forum) is scheduled for Tuesday, **May 09, 2017**, from 9:30 a.m. – 3:00 p.m. Mountain Time at the Sheraton Denver West Hotel, in Lakewood, Colorado.¹ At the Forum, Reclamation, its advisors and other project sponsors will discuss the traditional approach to financing projects and the Reclamation P3 initiative; as well as opportunities and challenges. Examples of potential projects listed in the Appendix, will also be discussed. Representatives of other Interior bureaus have also been invited to attend. The Forum is intended, in part, to provide an opportunity to respond to questions about this RFI and receive preliminary industry feedback prior to the RFI submission deadline.

Space is limited so please RSVP to <https://goo.gl/forms/hBAJvijD53IuyRFP2> no later than May 3, 2017. Please try to limit your attendance to no more than two people per company, if possible. The Forum will also be available for viewing via live streaming at www.usbr.gov/live.

Reclamation is not currently considering or accepting requests for one-on-one meetings related to this initiative.

1.7. Anticipated RFI Timeline

Although not binding, the following timetable outlines the anticipated schedule for the RFI process. The timing and sequence of events resulting from this RFI may vary and shall ultimately be determined by Reclamation, at its sole discretion.

Anticipated Procurement Timeline

Publish RFI	April 25, 2017
Industry Forum	May 09, 2017
RFI Response Submission Deadline	June 14, 2017
Reclamation/Sponsor Review of RFI	June-July 2017
Reclamation Comments on Submissions	August 2017

1.8. No Obligation

Reclamation reserves the right to modify or terminate this RFI process at any stage if it determines doing so would be in its best interest. The receipt of RFI responses or other documents at any stage of either the RFI or any subsequent procurement process will in no way obligate Reclamation to proceed with a transaction or enter into any contract of any kind with any party.

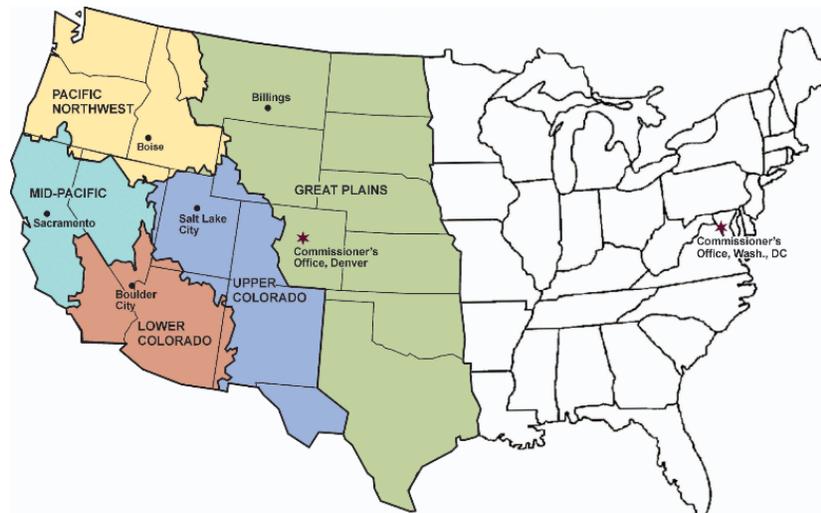
¹ The Sheraton Denver West Hotel is located at 360 Union Blvd, Lakewood, Colorado 80228.

2. Overview

2.1. Bureau of Reclamation

The Bureau of Reclamation is a Federal agency under the U.S. Department of the Interior which oversees water resource management, specifically as it applies to the oversight and operation of water diversion, delivery, and storage projects built throughout the western United States for irrigation, water supply, and attendant hydroelectric power generation.

Established in 1902, Reclamation is perhaps best known for the dams, powerplants, and canals it constructed in the 17 western states. It has constructed more than 600 dams and reservoirs including Hoover Dam on the Colorado River and Grand Coulee on the Columbia River, and today is the largest wholesaler of water in the country, operating 337 reservoirs with a total storage capacity of 245 million acre-feet. Each year, Reclamation infrastructure delivers ten trillion gallons of water to more than 31 million people and provides one out of five Western farmers with irrigation water for 10 million acres of farmland.



Reclamation is also the second largest producer of hydroelectric power in the United States. Reclamation holds title to 76 hydroelectric powerplants, 53 of which it operates directly, providing more than 40 billion kilowatt-hours annually. The hydropower generated by the 53 plants owned and operated by Reclamation, as well as by five plants of the remaining 23 that are operated by partners, is marketed by Power Marketing Administrations (i.e., either the Bonneville Power Administration or the Western Area Power Administration, both of which are agencies in the U.S. Department of Energy).² Reclamation also manages, with partners, 289 recreation sites that average 90 million visits annually.

Reclamation has statutory responsibilities for comprehensive planning, development, and management of multipurpose water projects in the 17 Western States. Historically, the primary purposes of Reclamation projects have been irrigation; flood control; and water for domestic, industrial, and municipal use. Hydroelectric power generally has been a secondary purpose, although is considered for inclusion in multipurpose Federal Reclamation projects when it is in the national interest, economically justified, feasible by engineering and environmental

² The five transferred plants whose power is marketed by Power Marketing Administrations are Deer Creek, McPhee, Towaoc, O'Neill, and San Luis.

standards, and assists in the financial undertaking of the project in accordance with the Reclamation law.

A unique aspect of Reclamation projects is that portions of the infrastructure costs are repaid to Reclamation by the users of the facility. Construction costs allocated to Municipal and Industrial (M&I) and commercial hydropower purposes are repaid with interest (with interest rates generally being set by the project authorizing legislation), but construction costs allocated to irrigation purposes are repaid without interest. Other project purposes which provide generalized public benefits, such as flood control, water quality improvements, and fish and wildlife enhancement, are, by law, non-reimbursable. By the same token, generally, operation and maintenance (O&M) costs allocated to reimbursable project purposes must be paid in the year incurred by the benefitting water and power users. However, O&M costs allocated to non-reimbursable purposes are borne by the Treasury.

Another important feature of Reclamation projects is how they are managed. In general terms, management of Reclamation projects can be divided into two basic categories:

1. **Reserved Works:** Reserved Works refer to facilities for which Reclamation holds title and has retained O&M responsibility. Projects that fall into this category include multipurpose projects and critical Federal infrastructure. In these instances, Reclamation coordinates closely with local authorities and stakeholders, but project O&M is performed by Reclamation personnel and is generally subject to Federal contracting.
2. **Transferred Works:** Transferred Works refer to facilities for which Reclamation also holds title, but O&M responsibility is transferred and performed by project beneficiaries pursuant to a contractual arrangement between Reclamation and the project beneficiary (e.g., a local irrigation district). In these instances, O&M costs, including rehabilitation and replacements, are borne directly by the project beneficiary, not Reclamation. Transferred works can include dams and reservoirs, water delivery and distribution canals and laterals, hydropower facilities, pumping plants, and similar facilities. For example, as mentioned previously, the operation and maintenance of 23 of the Reclamation-owned hydroelectric plants is carried out by non-Federal entities under the provisions of formal O&M transfer contracts.

These arrangements are important to understand in that they are critical matters when exploring potential alternative finance and delivery structures, such as P3. Baseline considerations, such as project length and completion, asset ownership or life-cycle responsibility, can materially impact issues such as the need for Federal appropriations, Office of Management and Budget (OMB) budget scoring (under OMB Circular A-11), and revenue generation and ring-fencing, making discussions of alternative finance and delivery for these projects all the more nuanced and complex.

More information on Reclamation is available at www.usbr.gov.

2.2. Reclamation P3 Initiative

Reclamation was established in 1902 and many of its facilities are now over a hundred years old. Reclamation is committed to repairing, expanding, and modernizing its existing infrastructure and in order to continue reliable and safe operations to deliver on authorized project benefits. However, limited funding, rapidly evolving technologies and heightened delivery risk represent challenges and opportunities. As such, Reclamation is interested in exploring alternative finance and delivery models such as P3 to address the repair and modernization needs in the timeliest and most cost-effective manner possible. Through an infusion of private capital and management, Reclamation see the potential benefit of P3's to help ease the fiscal restraints and boost efficiency in delivering public infrastructure and services, shortening delivery times, increasing innovation, addressing long-term maintenance needs, reducing life-cycle costs, and generating better value.

In order to explore market interest in potential P3 opportunities related to its portfolio and associated works, Reclamation is issuing this RFI which presents projects that have been identified as potential candidates for non-traditional finance and delivery. These projects are meant to be indicative of the broader portfolio and do not provide an exhaustive list of potential opportunities. Once market feedback is received, Reclamation may consider proceeding with some or all of these projects and/or advancing new projects concepts not contemplated currently.

Project overviews, as well as high-level potential transaction structures (where defined) are in Appendices B-F. The projects considered in this RFI include the following:

Appendix	Project Name	Location	Project Purpose / Description	Potential Transaction Structures
Appendix B	Kachess Drought Relief Pumping Plant	Washington	Floating pump plant and possibly conveyance or other ancillary works	Local Design-Building-Finance-Operate-Maintain (DBFOM) with Availability Payment
Appendix C	Eastern New Mexico Rural Water System	New Mexico	Water distribution	Utility concession or DBFOM
Appendix D	Paradox Valley Unit	Colorado	Salinity management	Off-take Agreement or other
Appendix E	Yuma Desalting Plant	Arizona	Water supply	Off-take Agreement or others
Appendix F	Arkansas Valley Conduit	Colorado	Water distribution	DBFOM or others

3. Conditions for the Submission of Information

3.1. Changes to this RFI

At any time in its sole discretion, Reclamation may, by written amendment to this RFI, modify, amend, cancel, and/or reissue this RFI. If an amendment is issued prior to the date information is due, it will be made available to all registered Respondents.

3.2. Information Preparation Costs

Reclamation shall not be liable for any costs incurred by any Respondent in the preparation, submission, presentation, or revision of its information and response, or in any other aspect of the Respondent's pre-information submission activity. All such costs shall be borne solely by the Respondent. In no event shall Reclamation be bound by, or liable for, any obligations with respect to the Project until such time as Reclamation authorizes and executes a written agreement, and then only to the extent set forth in such agreement.

3.3. Clarification of Responses

Reclamation reserves the option, at its sole discretion, to contact a Respondent to seek clarification regarding information contained in its response, but shall have no obligation to do so. In submitting its response, a Respondent should not assume that it will be provided an opportunity to subsequently clarify or otherwise discuss any feature thereof.

3.4. Disclosure of Information Contents

Respondents submitting business or other information pursuant to this RFI should be aware that requests for Reclamation information are processed in accordance with applicable Federal law. Respondents submitting business information pursuant to this RFI should consult 41 C.F.R. Part 105-60 and other implementing regulations concerning the release of such information to third parties pursuant to the Freedom of Information Act (FOIA). Reclamation may disclose submissions received in response to this RFI to non-governmental advisors.

3.5. Ownership of Submitted Materials

All materials and information submitted in response to or in connection with this RFI shall become the property of Reclamation and will not be returned to the submitting parties. Reclamation shall have the right to use such materials and information and ideas set forth therein without restriction or compensation to the provider.

3.6. Rights of Reclamation

Reclamation reserves to itself all rights available to it under applicable law, including but not limited to the unqualified right, at any time and in its sole discretion, to change or modify this RFI, to reject any and all information, to seek clarification of information, to request additional information, and to undertake communications with one or more Respondents or others who, at any time subsequent to the deadline for submissions to this RFI, may express an interest in the subject matter hereof.

No Respondent or any other person or entity shall have any rights against Reclamation arising from the contents of this RFI, the receipt of information, or the incorporation in or rejection of information contained in any response or in any other document. Reclamation makes no representations, warranties, or guarantees that the information contained herein or on the project website, or in any amendment hereto or thereto, is accurate, complete, or timely or that such information accurately represents the conditions that would be encountered during the performance of any subsequent contract issued from a separate procurement. The furnishing of such information by Reclamation shall not create or be deemed to create any obligation or liability upon it for any reason whatsoever; and each Respondent, by submitting its information, expressly agrees that it has not relied upon the foregoing information, and that it shall not hold Reclamation liable or responsible therefore in any manner whatsoever.

Appendix A – General Information Questionnaire

General Information

- 1) Please briefly provide the following descriptive information for the Respondent.
 - (i) Name of Respondent and its team members (if responding as a consortium); and
 - (ii) Describe principal business for Respondent and its team members (if any).
- 2) What potential interest do you represent in relation to any eventual P3 project (e.g., lead developer, design-build contractor, equity investor, operator, or other)?

Innovative Project Delivery

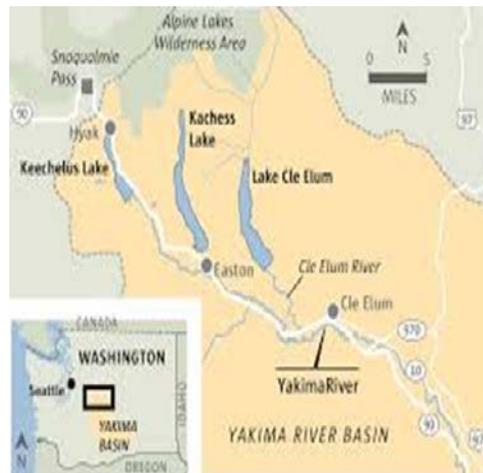
- 3) In general, do you believe that the Reclamation portfolio lends itself to alternative finance and delivery structures, such as P3? Please explain why or why not.
 - (i) Which projects or project purposes (i.e., M&I water supply, irrigation, recreation, etc.) are best positioned for P3?
 - (ii) Which projects or project purposes are least aligned to alternative delivery and why?
 - (iii) What are the biggest opportunities and constraints for (a) Reserved Projects and (b) Transferred Projects?
 - (iv) Given that some projects may present statutory restrictions and/or face policy hurdles, such as OMB scoring of availability payment, how would you recommend these challenges be best addressed and/or mitigated?
- 4) Reclamation is looking for opportunities to identify alternative finance and delivery methods, such as P3. Given your current understanding of Reclamation and its portfolio, briefly respond to the following:
 - (i) Can P3 help Reclamation and non-Federal interests to deliver on its authorized benefits in a timelier and more cost-effective manner?
 - (ii) How, if at all, could P3 boost efficiency in the provision of Reclamation infrastructure? For instance, could it help shorten delivery times, increase innovation, lower life-cycle costs, and/or address fiscal constraints?

- (iii) How, if at all, would P3 or similar structures generate better value for money for project beneficiaries?
- 5) If Reclamation were to pursue a P3 for one or more projects, would this be something your firm would be willing to consider (assuming, of course, that the transaction is generally well structured and financially viable)? What would be the key factors impacting your decision to pursue a P3 project issued by or in collaboration with Reclamation?
 - 6) Given that power generated by Reclamation is marketed by Federal Power Marketing Administrations, what opportunities exist to leverage alternative finance and delivery for hydropower?
 - 7) In your opinion, what key risks and responsibilities would Reclamation need to retain under P3 structures?
 - 8) What specific projects or project types would you be most interested in considering if Reclamation were to pursue a P3 initiative?
 - 9) Please provide any additional suggestions or concerns regarding a Reclamation P3 initiative.

Appendix B – Kachess Drought Relief Pumping Plant

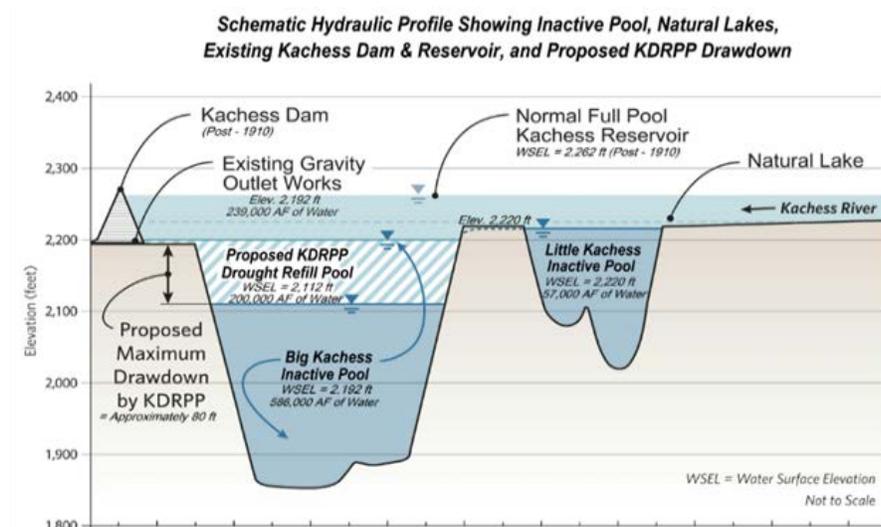
Background and Overview

Located in Washington State, the Kachess Drought Relief Pumping Plant (KDRPP) is a surface-water supply project designed to improve water resources management in the Yakima River Basin. Kachess Dam and Reservoir is part of the Yakima Project and is authorized under P.L. 57-161, Reclamation Act of 1902, June 17, 1902. The Kachess Drought Relief Pumping Plant, part of the Yakima River Basin Integrated Water Resource Management Plan (Integrated Plan), is being studied under the P.L. 96-162, Feasibility Study, Yakima River Basin Water Enhancement Project, December 28, 1979 and Title XII of P.L. 103-434, Yavapai-Prescott Indian Water Rights Settlement Act, October 31, 1994, as amended by P.L. 105-62, October 13, 1997, and P.L. 106-372, October 27, 2000.



For over a century, Reclamation has managed a system of working reservoirs in the Yakima Basin, including the Kachess Reservoir, which have supplied irrigation water to area farmers. During drought, demand for irrigation water in the Yakima Basin exceeds supply, endangering the approximately \$4 billion in annual agricultural income the region injects into the economy. The Kachess Drought Relief Pumping Plant is intended to “drought-proof” the basin’s irrigation needs by helping to provide at least 70% of proratable³ water rights, the minimum amount of water needed by agriculture for perennial crops to survive.

The Kachess Reservoir is a 239,000 acre-ft water supply storage reservoir on the Kachess River,



a tributary of the Yakima River. The dam and reservoir expands the depth of a prior-existing lake. Because the dam is gravity fed only, only the water stored by the dam itself can be accessed, thus leaving a significant amount of water inaccessible (586,000 acre-feet of inactive storage). With an estimated

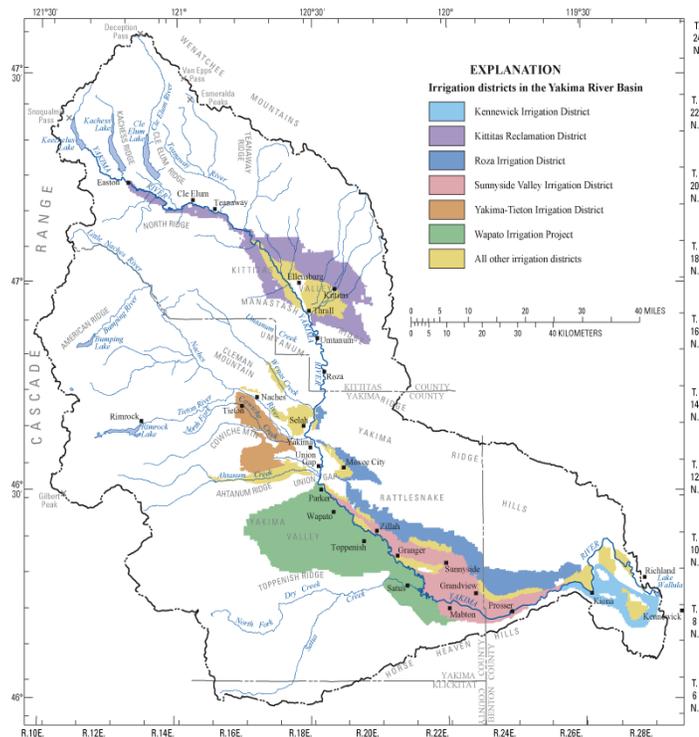
³ “Proratable” refers to the amount of water available for use, which is prorated based on estimates of water availability.

cost of approximately \$200 million, the KDRPP would construct a floating pumping plant, allowing the reservoir to be drawn down up to approximately 80 feet lower than the existing gravity outlet. This would allow access to some of the inactive storage of Kachess Reservoir – up to approximately 200,000 acre-feet – during drought.⁴ This accessed water would then flow downstream along Kachess River to the confluence with Yakima River, thus increasing flows of the Yakima River, and then downstream to be diverted and used.

The KDRPP was conceived to be a fixed pump station, constructed along the edge of the reservoir. A draft Environmental Impact Statement (EIS) was completed for this design by HDR, Inc. in January, 2015. However, an alternative approach of a floating pump station is being considered by local sponsors as a way to reduce costs. A supplemental EIS including for the floating pumping plant alternative is being finalized.

The Kachess Reservoir provides storage for a number of users downstream. Crops within the region are made up of high value products including grapes, apples, timothy hay, and some dairies. In 2012, agricultural production was a \$1.8 billion industry in the region, and food processing was a \$1.4 billion industry.

Diversions and use of Yakima River water are governed by state water law, which establishes rights to use based generally on “prior appropriation” doctrine, the basis for Western water law. Briefly, water rights are established based on the seniority (in terms of date) of their claims. A water user with a priority date of 1895 will have their entire water right fulfilled before a junior water user (e.g., with a priority date of 1905) gets any of their allocated water. This doctrine creates high certainty for senior water users but less certainty for junior users.



⁴ The inactive pool is over 586,000 acre-ft; the proposed KDRPP would only access the top 80 vertical feet of this pool, which would be approximately 200,000 acre-ft.

In the case of the Yakima, there are two broad groups of water users relevant for this project. Senior water rights users (those with a priority date earlier than May 9, 1905) and junior rights users (those with priority dates after May 10, 1905). The senior water users have “non-proratable” rights: their water rights will be fulfilled in their entirety, while the junior users have “proratable” rights: during severe droughts, the amount of water available for use is prorated



based on estimates of water availability. These estimates are made by the Bureau of Reclamation and are dynamic throughout the spring and summer because they are based on changing conditions such as snowpack conditions, ongoing precipitation and streamflow, and weather forecasts. During dry years, this creates substantial uncertainty for how much water these proratable

water users might receive in any year in which shortages are declared.

Roza Irrigation District (Roza) and Kittitas Reclamation District (KRD) are water users in the Yakima basin whose water supply is entirely proratable.⁵ Roza is in a particularly vulnerable water position because farmers in that district have converted their acreage toward perennial, fixed crops such as apple orchards, vineyards, and hops, in addition to high value annual crops. While this conversion has increased their annual revenue, it is also a significant investment and has also increased their dependence on water each year. Such perennial crops require anywhere from \$10,000 to \$25,000 per acre each year to maintain (including installation), and this investment would be lost if irrigation were not available for a single year. KRD has experienced less conversion to perennial crops, but the conversion is beginning to occur, and even their annual crops, such as Timothy Hay, represent significant annual revenue which would be lost without water for irrigation.

Roza assessment for water users in 2016 was \$186.75 per irrigable acre. An increase of \$43.75 occurred in 2016 to recover drought-related costs incurred in 2015, which included some of the preliminary work on the pumping plant at Kachess. This was a temporary increase, but demonstrated a willingness and capacity to pay. The 2017 base rate of \$176 per irrigable acre is used to operate and maintain the system each year, as Roza is paying down the small amount of remaining debt on existing infrastructure. Had the pumping plant project gone forward, Roza’s assessment would have increased to \$228/irrigable acre for 10 years. Under current assessment, Roza typically runs a surplus financially, and typically maintains a \$4M reserve fund.

Crops are changing to higher value with higher fixed costs (e.g., hops, wine grapes, high density apples). The apple, blueberry, and hop plantings all require high capital costs (e.g., \$20,000 to \$25,000 per acre) to install. Wine grapes range from \$6,000 to \$12,000 to install, and land purchase, not included in these costs, is above \$10,000 per acre. In addition, many of these crops

⁵ Wapato Irrigation Project and Kennewick Irrigation District have also expressed an interest to participate in KDRPP.

require water later in the irrigation season (mid-September to mid-October) to maintain fruit quality.

While many of the growers have emergency drought wells that can be used during water short years, those wells are very expensive to operate either in diesel fuel or in standby demand charges if the pumps are electric. Most growers prefer not to use their emergency wells unless absolutely necessary only to keep their crops alive. In 2015, several growers also noted that they required \$50,000 to \$250,000 in well rehabilitation work needed to make their wells usable, aside from operation costs, as the wells have not been in use since the 2005 drought.

Recent droughts reveal some estimate of the value of water to Roza irrigators. During the drought of 2005, Roza leased over 28,000 acre-feet of water from senior irrigation districts for over \$8.5 million (\$300/acre). In 2015, Roza increased their offer to \$500/acre, but could only obtain 4,534 acre-ft (total cost of water lease, \$2.267 million) because other irrigation districts with senior water rights capped the amount of water that could be leased out of district. There were several lessons from these market transactions. First, the economic value of water to Roza irrigators during droughts is at least \$500/acre-ft. Second, while water markets can address some of the water shortages, the limits placed on transactions by senior users caps the potential use of markets for the scale of shortages that could occur in the future.

Alternative Finance and Delivery Considerations

Given that the infrastructure in question (the pumping plant) would not be Federally owned and operated, but would be located upon a Reclamation reservoir, the contracting authority for this project is expected to be one or more of the local irrigation districts (most likely the Roza District). Although the District has a strong financial and operational track record, it has never undertaken a project of this nature and is thus considering alternative finance and delivery for the following reasons:

- (i) **Risk allocation:** Project sponsors have never undertaken a project of this nature and would prefer to transfer design and construction risk, as well as longer term life-cycle maintenance risk, to a third party, thus providing greater cost and schedule certainty for the public.
- (ii) **Accelerated delivery to advance public benefits:** By delaying payments until project completion and by putting private sector capital at-risk, the design-builder takes on full schedule risk and the incentive to deliver the infrastructure as quickly as possible.
- (iii) **Private Sector Innovation:** Given the complexity of the proposed system, there is potentially great value to be gained by enabling private sector innovation in the design, construction and maintenance of the system.
- (iv) **Life-cycle cost savings:** Bundling design and construction with life-cycle maintenance responsibilities will potentially produce savings versus traditional delivery, as the private partner will be incentivized to design and build the system in a way to minimize life-

cycle costs.

For these reasons, amongst others, project sponsors are giving consideration to delivering the project under the following anticipated transaction structure:

Anticipated Transaction Structure: Design-Build-Finance-Maintain (DBFM), with operations being retained by either the basin districts or Reclamation.

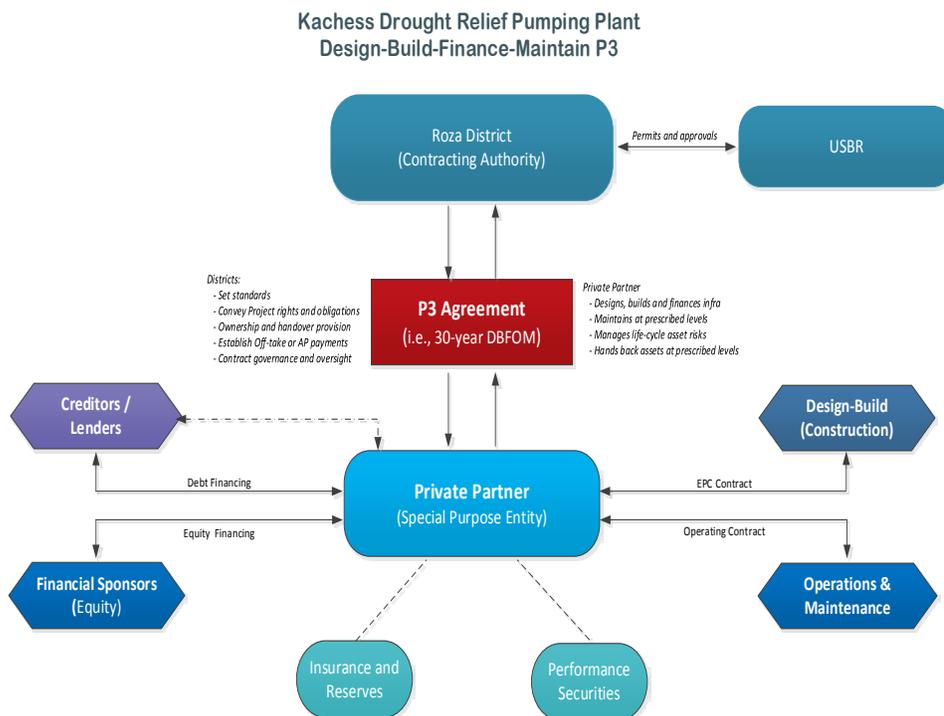
Scope of Services:

Private Partner to design, build and finance KDRPP (and potentially the conduit/wheeling system), as well as to provide for its continual operational capacity at prescribed maintenance levels over term of contract.

Payment

Mechanism: Most-likely an availability payment structure backed by the

Districts (which are credit-worthy). Consideration could also be given to a user-pay model.



Water Rights and Output requirements: Water rights are established. Output requirements to be defined in P3 Agreement.

Water Pricing and Adjustments: Determined by water districts

Anticipated Term: 25-30 years [upon completion of construction]

Kachess Drought Relief Pumping Station Questionnaire

- 1) Do you believe that Kachess Drought Relief Pumping Station lends itself to alternative finance and delivery structures, such as P3? Why or why not?
- 2) Is a DBFM or DBFOM a suitable structure for this type of project? Why or why not?
- 3) If Reclamation and/or the irrigation districts pursue a DBFM availability payment structure, how would this affect your willingness or ability to propose on the Project?

What modifications would make the opportunity more attractive?

- 4) What is the appropriate scope of operations and maintenance responsibility to delegate to the private sector? Are there certain portions of the Project, or certain maintenance activities that are more appropriate to be retained by project sponsors? Please explain.
- 5) Recommend specific steps that project sponsors could take to motivate innovation and reduce contingency for project risks – either through an alternative technical concept mechanism in the bid process or other mechanisms you have utilized on similar projects
- 6) What are the key risks, considerations and concerns you might have with regard to this potential transaction?
- 7) Provide any specific suggestions and refinements to the transaction structure and/or allocation of responsibilities that you believe would result in best value for project sponsors and the public.

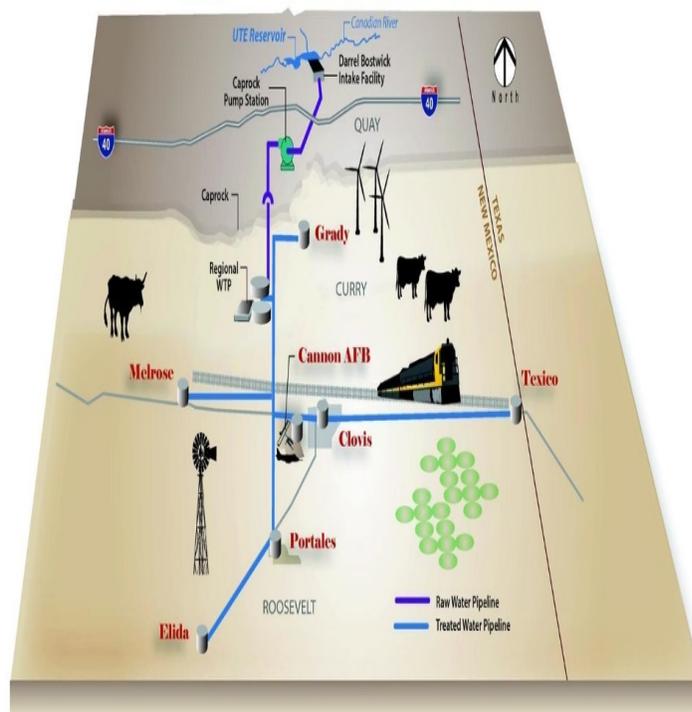
Appendix C – Eastern New Mexico Rural Water System

Background and Overview

Authorized under the Omnibus Public Land Management Act of 2009 (Public Law 111-11, Section 9103), the Eastern New Mexico Rural Water System Project is a regional rural water supply project in east-central New Mexico.

The purpose of the Project is to provide the participating communities in rural eastern New Mexico water system with a reliable, renewable and sustainable potable water supply. The project will supply potable water to seven cities and county member agencies and Cannon Air Force Base (AFB) for municipal, commercial, and industrial use.

The project will replace current groundwater supplies from the Ogallala Aquifer with a renewable surface water supply (Ute Reservoir). Construction of Ute Dam was completed in 1963, creating Ute Reservoir to store water for this purpose. Groundwater levels in the Ogallala Aquifer, the only currently available source of water, are rapidly declining. The Project will ultimately convey 16,450 acre-feet of water per year from the Ute Reservoir to eastern New Mexico communities.



The proposed project has an estimated cost of approximately \$527 million and consists of the following major components:

- About 150 miles of water conveyance pipelines.
- A raw water intake structure and pump station at the south shore of Ute Reservoir, with a flow rate of 28 million gallons per day (mgd). (Already completed)
- A 28 mgd raw water booster pump station at the base of the Caprock and a 1 million-gallon storage tank at the top of the Caprock in Quay County.
- A 28 mgd water treatment plant in Curry County with a finished water booster pump station to service downstream municipalities.
- Finished water booster pump station in Roosevelt County to convey finished water to Elida.
- Pressure reducing stations, where required, to serve Cannon AFB and the communities of Clovis, Elida, Grady, Melrose, Portales, and Texico.

The Project will be constructed, owned, operated and maintained by the Eastern New Mexico Water Utility Authority (the Authority), the Project’s local sponsor. It is being constructed under a Federal funding cost-share arrangement, but at current funding levels, the Project is not likely to be completed for decades. This pace is unsustainable, as aquifer levels are declining at a rate of 0.5 to 5.8 feet per year.

Alternative Finance and Delivery Considerations

Recognizing that competing priorities make a significant increase in or acceleration of Federal appropriations for this Project unlikely, consideration is being given to alternative finance and delivery opportunities with the aim of accelerating Project delivery and reducing life-cycle asset cost.

After a preliminary review, the Project appears to meet many of the standard screening criteria for Alternative Finance & Delivery, including the following:

Project Size & Complexity	<ul style="list-style-type: none"> • \$527 million • Complexity of project components lends itself to bundling
Criticality	<ul style="list-style-type: none"> • Vital to economic activity • Urgency of implementation due to depleting aquifer • Deeper water supplies grow continually higher in salinity and lower in overall water quality.
Revenue potential	<ul style="list-style-type: none"> • Potential for revenue generation from water sales (including Cannon AFB, a credit-worthy off-taker), as well as ancillary revenue. • Affordability issues, however, must be considered.
Legal, Regulatory and Policy Obstacles	<ul style="list-style-type: none"> • Environmental clearances in place • As a non-Federal P3, project avoids OMB scoring constraints associated Federal P3 (under OMB Circular A-11)
Risk transfer / Potential P3 Benefits	<ul style="list-style-type: none"> • Significant potential for scheduling efficiencies (delivery in approximately 3 years) • Significant potential capital savings due to accelerated delivery • Life-cycle cost savings through bundling design and construction with operations and maintenance • Potential to transfer life-cycle asset management to specialized firm • Project would benefit from innovation and technology

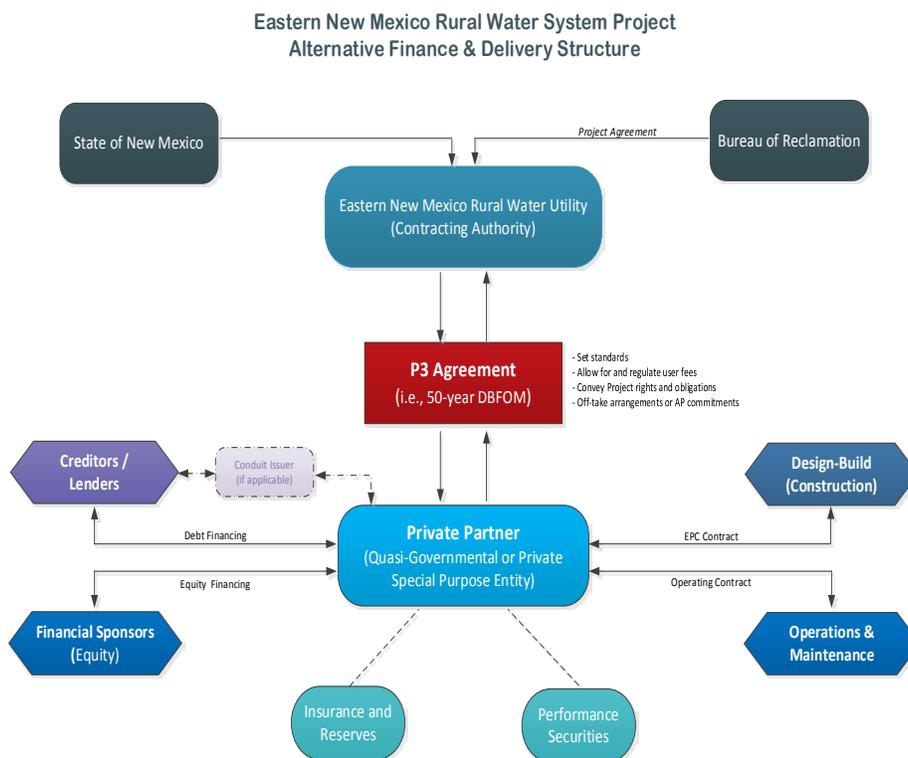
After an initial review, this Project appears potentially well suited for project finance, as water is a vendible commodity, thus facilitating the creation of a dedicated revenue stream to cover Project costs. Cannon Air Force Base also provides a credit-worthy off-taker for some of the water. Water affordability issues will need to be carefully addressed, but there is likewise

potential for other types of funding sources and revenue generation opportunities that could cover costs and limit the rate burden on water users.

As a greenfield project with no water usage data and affordability issues, a take-or-pay arrangement or an availability payment is being considered to ensure the credit-worthiness of the project under a P3 arrangement.

It is hoped that through an infusion of private capital and management, an alternative finance and delivery approach could potentially ease fiscal restraints and boost efficiency in the delivery of this Project, shortening delivery times, transferring risk, providing better value-for-money, and increasing innovation. Moreover, linking Project finance and delivery to future operations will increase accountability and likely result in significant life-cycle savings.

While there are many potential transaction structures that could be applied to this Project, the most obvious modality would align with a traditional utility concession structure, as summarized below:



The Eastern New Mexico Rural Water Utility Authority, as the local sponsor, would continue as project owner and procure a qualified and experienced Private Partner to design-build-finance-operate and maintain the Project for a specified period (i.e., 50 years).

The P3 Agreement would set forth the performance standards, as well as the obligations and rights of the Parties to the Agreement. The framework for regulating water prices would either be set out in the P3 Agreement or in a separate regulation issued by the Authority.

The Private Partner would be required to provide upfront financing (through private debt and/or equity) and commit to completing the entirety of the works within a stipulated time period (e.g., 3 years). The Private Partner would receive no (or limited) compensation until the works were fully completed, thereby transferring full schedule risk and cost risk away from the Authority. After completing the works, the Private Partner would likely be compensated in whole or in part through offtake or availability payments, depending on the final structure of the transaction. Funding for payments to the private partner would likely be sourced through a combination of user fees, assessments, taxes and/or grants. The private partner would also likely be given rights to generate ancillary revenues.

Over the term of the P3 contract, the Private Partner would be responsible for the operation and maintenance of the Project, including maintaining the asset to prescribed levels. At the expiry of the contract, the Private Partner would “hand-back” the asset at prescribed standards to the Authority, who could either operate it directly and/or procure another specialized operator.

Eastern New Mexico Rural Water System Questionnaire

- 1) Do you believe that Eastern New Mexico Rural Water System lends itself to alternative finance and delivery structures, such as P3? Why or why not?
- 2) Is either a utility concession or DBFOM a suitable structure for this type of project? Why or why not? Please explain and offer suggestions as to another preferred approach (if any).
- 3) What level, if any, of revenue risk would you be willing to assume in this project?
- 4) Would you consider an availability payment or off-take arrangement backed by the Eastern New Mexico Water Authority Utility to be credit worthy? If not, what would you propose be done to strengthen the credit worthiness of project?
- 5) What is the appropriate scope of operations and maintenance responsibility to delegate to the private partner? Are there certain portions of the Project, or certain maintenance activities that are more appropriate to be retained by project sponsors? Please explain.
- 6) Does the potential for ancillary revenues impact your level of interest in a future transaction? Please explain.
- 7) Recommend specific steps that project sponsors could take to create interest in the project.
- 8) Does the project lend itself to private sector innovation and efficiencies?
- 9) What are the key risks considerations and concerns you might have with regard to this potential transaction?
- 10) Provide any specific suggestions and refinements to the transaction structure and/or allocation of risk, rights and responsibilities that you believe would result in best value for project sponsors and the public.

Appendix D – Paradox Valley Unit

Background and Overview

The Paradox Valley Unit (PVU) was constructed to assist in meeting the objectives and standards of the Federal Water Pollution Control Act of 1948 (Pub. L. 80-845) and the Colorado River Basin Salinity Control Act of 1974, as amended and supplemented (Pub. L. 93-320), which authorizes the construction, operation and maintenance of works in the Colorado River Basin to control salinity of water delivered to users in the United States and Mexico. The purpose of the PVU is to prevent natural brine groundwater from entering the Colorado River system. The 16,000-foot-deep injection well is located approximately one mile south of Bedrock, Colorado, in the Dolores River canyon.



The PVU consists of a brine collection well field, a three-mile-deep injection well, and associated facilities and infrastructure, currently preventing approximately 100,000 tons of salt from entering the Dolores and Colorado rivers each year. The Paradox Valley Unit injection well is nearing the end of its useful life and Reclamation is evaluating alternatives for its functional replacement.

Presently there is no clear consensus as to the technology solution that most efficiently addresses the Federal government's desalination goals. Three action alternatives are currently being evaluated: (1) replacement injection well, (2) evaporation ponds, and (3) brine zero liquid discharge (ZLD) technologies. The latter two alternatives would require some form of land disposal of the waste salt, regulated under the Resource Conservation and Recovery Act.⁶

Given the significant capital investment associated with a new injection well, evaporation ponds, or brine ZLD processes, Reclamation is interested in exploring alternative contracting options in order to prevent natural brine groundwater from entering the Colorado River system.

Alternative Finance and Delivery Considerations

Reclamation's primary objective with PVU is to prevent natural brine groundwater from entering the Colorado River system; however, there are a wide variety of means to achieve this outcome. Changing technologies and other factors could render obsolete any capital investment made by Reclamation today before the end of the asset's useful life cycle. Recent advances in desalination

⁶ Evaporation ponds or brine ZLD technologies would generate a maximum of 171,000 tons of salt annually that would require disposal. This amount of salt has a compacted volume of approximately 87 acre-feet and would require around 6,600 standard semi-truck loads for transport annually. The location of evaporation ponds or a brine ZLD facility is highly dependent upon the location of a suitable landfill site from life-cycle cost, public acceptability and safety perspectives.

technology demonstrate that this is a dynamic industry and increasingly efficient treatment systems are being brought to market by specialized operators. The fundamental question is whether Reclamation should assume full life-cycle and technology risk associated with salinity control or whether this is something that might be better allocated to a specialized private operator.

Recognizing that there is currently no consensus or decision as to the optimal technology for meeting Reclamation's desalination output requirements, and given the prevailing constraints of Federal funding, two alternative finance and delivery approaches for salinity control are currently being evaluated.

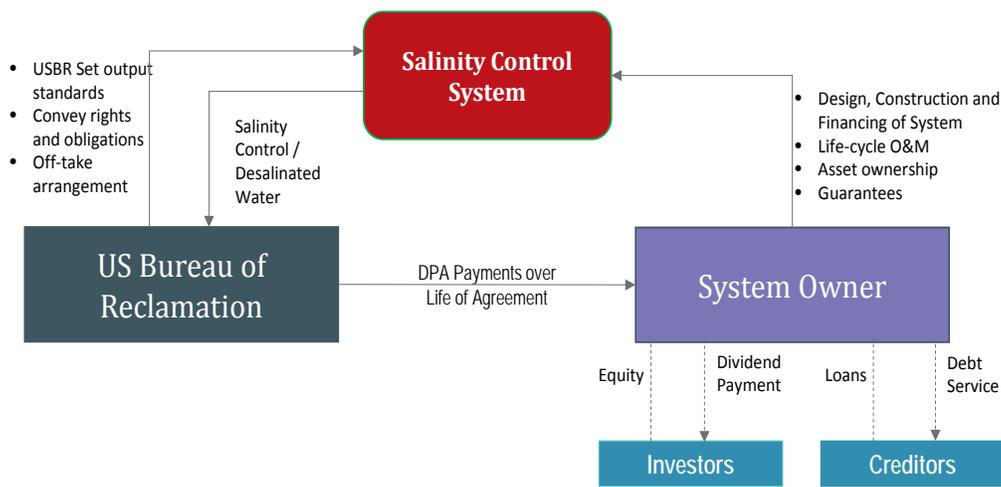
Option 1: Federal Off-Take Arrangement with a Privately Owned and Operated Desalination Facility

One option being considered is an output-based contract structure, whereby Reclamation would procure prescribed levels of salinity or a contracted volume of desalinated water under a medium- or long-term take-or-pay purchase agreement. The private contractor would be solely responsible for the design, construction, financing, operation and maintenance of the salinity control facility, which it would likewise own. Reclamation would simply formalize a contract for the desalination / salinity control services, which would be funded as an ongoing Reclamation operating expense. This transfers all asset ownership risks and long-term operations and maintenance responsibilities to the private contractor, with Reclamation paying for the prescribed output.

This structure has precedent at the Federal level, as evidenced, for example, by the U.S. Department of Defense's (DoD) \$7 billion renewable energy program in which DoD purchases clean energy from private energy generators under a long-term (30-year) Power-Purchase-Agreement (PPA). The PPA secures the payment stream for a privately built independent powerplant (IPP) and is formalized between the energy purchaser "off-taker" (i.e., the DoD) and a privately-owned power producer.

This same structure may be easily translated to Paradox Valley, with the only difference being that instead of energy, the private partner would commit to the off-taker (Reclamation) to either produce prescribed levels of salinity or make available contracted volume of desalinated water in accordance with an off-take arrangement (in this case, for lack of a better term, a Desalination Purchase Agreement, or DPA). The pricing in the DPA would be subject to a competitive procurement, but would cover both fixed and variable costs. The DPA would also establish guarantees and other performance securities to ensure the long-term reliability of the system. At the end of the term of the agreement, Reclamation could either undertake a competitive procurement process for a new DPA or look to acquire the Salinity Control System. In broad strokes, this arrangement can be summarized as follows:

Desalination Purchase Agreement (DPA)



Although Reclamation may need to seek special authority to enter into a long-term purchase agreement of this sort,⁷ this structure is seen to have a number of advantages, including substantial risk transfer to a specialized operator. Moreover, similar Federal PPA structures have traditionally been scored for budgetary purposes as an operating expense, avoiding many of the pitfalls typically associated with the scoring of privately financed infrastructure under OMB Circular A-11.

Option 2: Design-Build-Finance-Operate-Maintain P3 Agreement

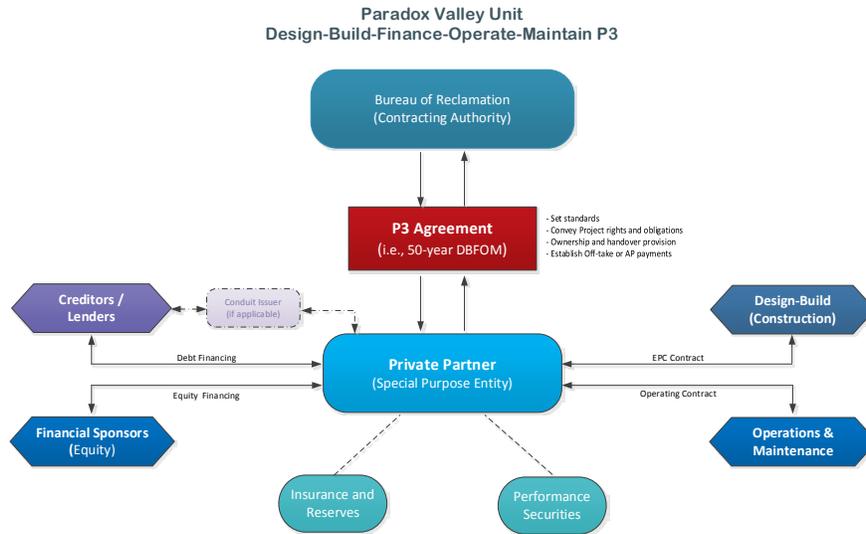
As an alternative to an off-take agreement, Reclamation is also considering the use of private sector financing and innovation via a traditional Design-Build-Finance-Operate-Maintain structure. Under this arrangement, Reclamation would procure a qualified and experienced Private Partner to design-build-finance-operate and maintain the salinity control system for a specified period in exchange for performance-based payments (availability payments) made by Reclamation to the private operator on the basis of system operations. The design concept and/or technology could either be pre-defined by Reclamation or an element of the procurement process.

The Private Partner would design and build the system, as well as provide upfront financing, committing to complete the entirety of the works within a stipulated time period. The Private Partner would receive no compensation from Reclamation until the works reached substantial completion, thereby transferring full schedule and cost risk away from Reclamation. After delivering the infrastructure, the Private Partner would be compensated through availability payments or a take-or-pay arrangement, depending on the final structure of the transaction.

Over the term of the agreement, the Private Partner would be responsible for the operation and maintenance of the salinity control system at levels prescribed in the P3 agreement. As the public

⁷ DoD needed to seek special authority to allow for long term PPA contract. Specifically, §2922a “Contracts for energy or fuel for military installations” or 10 U.S.C. 2922a (DOD Authority) allows for contracting for up to 30 years for certain activities, including energy production facilities on DoD real property or on private property.

partner, Reclamation would remain engaged, exercising standard contract governance and oversight rights. At the expiry of the contract, the Private Partner would hand-back the asset at prescribed standards to Reclamation, who could either operate it directly and/or procure another specialized operator.



As a P3, there are a number of nuanced variations to consider, such as asset ownership during the term of the contract and the tax treatment of the Private Partner; but in general, this structure should be readily understood by experienced P3 market participants.

While a DBFOM would likely generate significant savings and benefits for Reclamation and taxpayers, as privately financed Federal infrastructure, Reclamation recognizes that this may be viewed by a capital lease and scored upfront, in accordance with OMB Circular A-11. This scoring treatment would preclude Reclamation’s ability to further pursue this transaction structure; however, it remains interested in exploring market perspective on in this specific delivery structure.

Paradox Valley Unit Questionnaire

- 1) Do you believe that Paradox Valley lends itself to an alternative finance and delivery approach? Why or why not?
- 2) What benefits would a P3 or alternative finance and delivery structure provide to Reclamation?
- 3) Can the private sector play a role in providing salinity control services to help Reclamation meet Federal obligations stipulated in the Colorado River Basin Salinity Control Act of 1974? Does the private sector have the capacity and/or expertise to meet the salinity output requirements of the project?
- 4) Is a privately owned and operated facility with a desalination purchase agreement (DPA)

or off-take agreement a potentially viable option? Why or why not? How could this arrangement be made to be interesting to private investors and operators?

- 5) If Reclamation were to pursue a DBFOM:
 - (i) How prescriptive should it be in terms of the technology, design concept and input requirements?
 - (ii) In addition to potential concerns about OMB scoring of availability payments, what are the key risks associated with this transaction structure?
- 6) Which structure (a privately owned and operated facility with a Federal off-take agreement or a DBFOM with availability payments), if either, do you consider preferable? Why or why not? Please explain and offer suggestions as to any other suggested approach.
- 7) What level of risk would you be willing to assume in this project?
- 8) Do you believe that there may be opportunities to generate ancillary revenues? If so, please explain.
- 9) What additional rights, if any, might Reclamation consider offering private investors in order to create additional commercialization and/or monetization opportunities in support of this project?
- 10) What is the appropriate scope of operations and maintenance responsibility to delegate to the private sector? Are there certain portions of the Project, or certain maintenance activities that are more appropriate to be retained by project sponsors? Please explain.
- 11) Recommend specific steps that Reclamation could take to motivate innovation and reduce risks associated with this project.
- 12) What do you envision to be the key risks considerations and concerns associated with a potential P3 transaction for PVU?
- 13) Provide any specific suggestions and refinements to the proposed transaction structure and/or allocation of risk, rights and responsibilities that you believe would result in best value for Reclamation and the public.

Appendix E – Yuma Desalting Plant

Background and Overview

The Yuma Desalting Plant (YDP) was constructed under authority of Title I of the Colorado River Basin Salinity Control Act of 1974 (P.L. 93-320) in order to reduce the salinity of water delivered to Mexico as part of international treaty obligations established in 1973.⁸ The U.S. is obligated to provide 1.5 million acre-feet of water to Mexico each year under a 1944 Treaty and the U.S. also agreed to provide specific water deliveries at prescribed salinity requirements under a subsequent agreement between the U.S. and Mexico.

YDP is designed to treat high-saline pumped agricultural drainage flows from the Wellton-Mohawk Irrigation and Drainage District before returning it to the Colorado River. The plant was built in 1992 and operated only three times since completion for limited periods of time, ranging from 10 to 33% of capacity. Prescribed salinity requirements have been met to date without operating the YDP by “bypassing” the saline drainage flows into the Ciénega de Santa Clara in Mexico; however such “bypass flows” do not count toward meeting the annual delivery requirement to Mexico. The plant undergoes approximately \$2-3 million per year in maintenance work.



Operating the YDP would save water in Lake Mead by allowing the bypass water to be used to meet Mexico’s delivery requirement. The most recent operation resulted in the conserved water generating Intentionally Created Surplus (ICS) credits for the parties making the investment in the operation of the YDP, whereby that water is available to the parties at a later time.⁹

In 2010, due primarily to on-going drought conditions, Reclamation and three partners (Central Arizona Water Conservation District, The Metropolitan Water District of Southern California, and Southern Nevada Water Authority) explored operation of YDP. In a 328-day pilot project from May 2010 – March 2011, YDP operated at one-third design capacity to determine operational costs and extent of necessary capital upgrades. Results from the study are shown in the table below:

⁸ Minute No. 242 of the International Boundary and Water Commission.

⁹ ICS is a program administered by the Bureau of Reclamation in accordance with the “Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead” (Interim Guidelines) of December 2007. The program provides an opportunity for Colorado River basin water users to accrue credits from water conservation actions and to recover the conserved water credits at a later time.

Capacity	Water Conserved Per Year (ac-ft)	Total Est. Capital Cost (\$m)	Average Annual O&M (\$m)*
Pilot Run (1/3 capacity)	30,496	\$5.74 ¹⁰	\$10.22
1/3	31,361	\$23.08	\$12.05
2/3	67,002	\$42.74	No data available
Full	91,153	\$55.14	No data available

*For one-third to full capacity, most recent estimate of annual O&M is \$11.55-\$12.54 million; \$12.05 million is the average.

Presently, there is no clear consensus as to whether investing in YDP is the best and most cost-effective alternative to conserve water in Lake Mead for more beneficial purposes. Whereas upgrading and operating the YDP is one option, likewise consideration is being given to other alternatives, as well as employing alternative desalination technologies. Given this uncertainty, Reclamation has been exploring a number of alternative options that could potentially help it address its project objectives, while likewise optimizing innovation and reducing life-cycle asset costs.

This preliminary exploration has only contemplated domestic considerations as matters related to water users and natural resources in Mexico such as the Cienega de Santa Clara are matters of foreign policy that are addressed through the International Boundary and Water Commission (IBWC), the international body responsible for addressing Colorado River matters between the U.S. and Mexico, pursuant to the 1944 Water Treaty and subsequent implementing Minutes pursuant to the 1944 Treaty. Thus, any consideration of YDP operation would require both domestic consultations with the seven Colorado River Basin states, and consultation between the United States and Mexico. These water management, financial, environmental, economic, and foreign policy considerations make the YDP setting, and the suite of issues regarding the YDP, uniquely complex within the range of potential P3 activities for Reclamation.

Alternative Finance and Delivery Considerations

Reclamation’s primary objective that led to construction of YDP is to desalinate agriculture drainage water to deliver to Mexico, while saving Lake Mead water for other beneficial uses. There appear to be a wide variety of means to achieve these outcomes, including upgrading the existing plant. In light of changes in desalination technologies, Reclamation recognizes that there are a variety of potential alternative finance and delivery approaches including:

Option 1: Off-take Arrangement with a Private Facility

Given the emergence of firms specializing in desalination technology and operations, consideration is being given to an output-based contract structure, whereby Reclamation would procure a contracted volume of desalinated water under a medium- or long-term take-or-pay purchase agreement. The private contractor would be solely responsible for the design, construction, financing, operation and maintenance of the salinity control facility, which it would likewise own. Reclamation would simply formalize a contract for the desalination / salinity

¹⁰ Capital investment made to prepare the YDP for the pilot operation.

control services, which would be funded either as an ongoing Reclamation operating expense or other arrangement. This option would transfer all asset ownership risks and long-term operations and maintenance responsibilities to the private contractor, with Reclamation simply paying for the prescribed output.

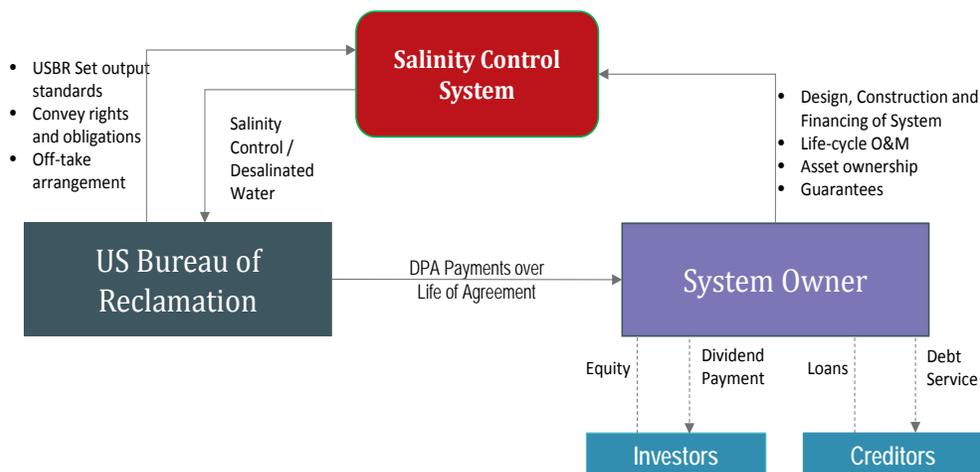
As mentioned previously, this structure has ample precedent at the Federal level, as evidenced for example by the U.S. Department of Defense's (DoD) \$7 billion renewable energy program in which DoD purchases clean energy from private energy generators under a long-term (30-year) Power-Purchase-Agreement (PPA). The PPA secures the payment stream for a privately built independent powerplant (IPP) and is formalized between the energy purchaser "off-taker" (i.e., the DoD) and a privately-owned power producer.¹¹

This same structure can be translated to YDP, with the only difference being that instead of energy, the private partner would commit to the off-taker (Reclamation) to make available a contracted volume of desalinated water in accordance with an off-take arrangement (in this case, for lack of a better term, a Desalination Purchase Agreement, or DPA). The pricing in the DPA would be subject to a competitive procurement, but would cover both fixed and variable costs. If a legally viable path could be identified, the potential to monetize or trade any corresponding Intentionally Created Surplus (ICS) credits might also help to wholly or partially off-set costs associated with the arrangement. The ICS mechanism was adopted in a 2007 pilot program developed with the seven Colorado River Basin states and is only in effect through 2026. As it was not developed with the ability to monetize or transfer ICS credits, consultation between Reclamation and Lower Basin contractors would be required to explore any such arrangement. Consultation between the Department of the Interior and the seven Colorado River Basin states would also be required, pursuant to the 2007 Interim Guidelines that adopted the ICS mechanism.

The DPA concept would also establish guarantees and other performance securities to ensure the long-term reliability of the system. At the end of the term of the agreement, Reclamation could either undertake a competitive procurement process for a new DPA or look to acquire the plant. The arrangement can be summarized as follows:

¹¹ In the case of the DoD renewable energy program, Federal authorities enter into an arrangement for a private company to produce and sell energy to military installations under the terms of a Power-Purchase-Agreement. The PPA sets forth obligations relating to the sale and purchase of the power generated, as well as required design, outputs and O&M specifications for the powerplant. The private power producer agrees to make available and deliver the contracted capacity of energy to the off-taker (DoD), in accordance with the PPA. The pricing in the PPA is typically a pass-through arrangement whereby the price charged for the power consists of a charge (availability charge) to cover the project company's fixed costs (including a return on equity for the project company) plus a variable charge to cover the project company's variable costs. The availability charge relates to the availability of the powerplant and the variable charge is calculated according to the quantity of power supplied. The PPA includes the annual energy rates for the duration of the agreement, which provides operational cost predictability and stability. The PPA also provides sanctions or requires the power producer to pay liquidated damages if the power producer fails to deliver to prescribed service levels.

Desalination Purchase Agreement (DPA)



Although Reclamation may need to seek special authority to enter into a long-term purchase agreement of this sort, this structure has a number of advantages, including substantial risk transfer to the private owner and operator. Moreover, similar Federal PPA structures have traditionally been scored for budgetary purposes as an operating expense, avoiding many of the pitfalls typically associated with the scoring of privately financed infrastructure under OMB Circular A-11.

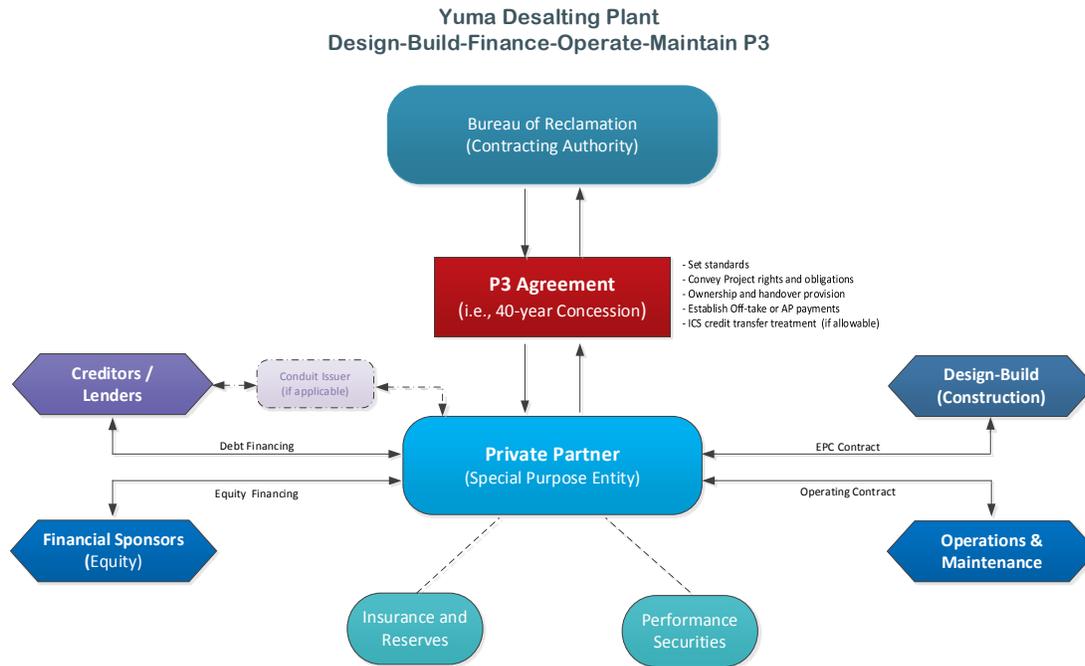
Option 2: Long-Term Brownfield Concession (DBFOM)

Under a concession agreement, Reclamation would concede full rights and privileges over existing YDP facilities to a private partner, who would likewise be responsible for the expansion and/or rehabilitation of existing facilities to meet Reclamation output requirements. Reclamation would own the facility, as well as any improvements, but the private contractor would be responsible for the design, construction, financing, operation and/or maintenance of the facility over the term of the contract (usually 25-40 years). The private partner would be compensated through ongoing performance-based payments (availability payments) made by Reclamation and other ancillary revenue. The P3 Agreement would set forth the performance standards, as well as the obligations and rights of the Parties to the Agreement.

The Private Partner would design and build the system, employing the technology that it feels will best address the output needs of the project. This fully transfers technology and performance risk to the private partner. The private partner would likewise provide upfront financing to modernize the plant, thereby ensuring that the works will be completed within a stipulated time period. The Private Partner would receive no compensation from Reclamation or otherwise until the works were fully completed, thereby transferring full schedule and cost risk away from Reclamation.

Over the term of the agreement, the Private Partner would be responsible for the operation and maintenance of the desalting facility. This ensures that the asset is maintained adequately throughout its life-cycle, avoiding common pitfalls such as deferred maintenance. At the expiry

of the contract, the Private Partner would hand-back the asset at prescribed standards to Reclamation, who could either operate it directly and/or procure another specialized operator.



This brownfield DBFOM concession structure is very common, but again, given that this would involve privately financed Federal infrastructure, any Reclamation obligations (including future payments to the private partner) under this arrangement may potentially be scored upfront as a capital lease, in accordance with OMB Circular A-11. This scoring treatment would present a significant obstacle to implementation.

Option 3: Greenfield Concession (DBFOM)

Under a Greenfield concession agreement, Reclamation would concede full rights and privileges over new facilities to a private partner. Reclamation would own the facility, which would most likely be on a different site, but the private contractor would be responsible for the design, construction, financing, operation and/or maintenance of the facility over the term of the contract. The primary difference between this option and the Brownfield concession option is that in the case of a Brownfield, Reclamation would be transferring rights over the existing YDP facilities to the private partner, while under a Greenfield, Reclamation would be transferring rights associated with future facilities and services. The Greenfield concession approach would be most beneficial if commercialization or efficiency opportunities can be optimized on a new site or with entirely new facilities. Nevertheless, if the facility is Federally owned, this structure will likely come up against the same scoring issues as in the case of the brownfield DBFOM.

Yuma Desalting Plant Questionnaire

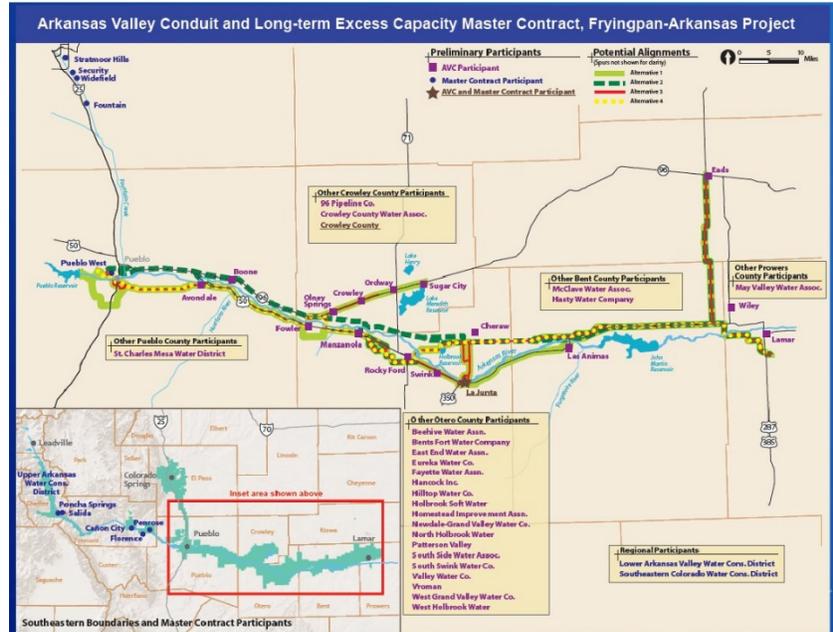
- 1) Does YDP lend itself to an alternative finance and delivery approach? Why or why not?

- 2) What benefits would a P3 or other alternative finance and delivery approaches provide to Reclamation and/or other project stakeholders?
- 3) Does the private sector have the capacity and/or expertise to meet the output requirements of a water desalinization project of this nature? What level of certainty can be provided regarding such requirements?
- 4) Regardless of the ability of a non-Federal entity to perform, what, if any, risks would such an approach present in light of the treaty-based obligations imposed under Federal law?
- 5) Do you believe privately owned and operated facility supported by a desalination purchase agreement (DPA) or off-take agreement to be a potentially viable option? Why or why not? How could this arrangement be made to be interesting to private investors and operators?
- 6) If Reclamation were to pursue a DBFOM:
 - a. How prescriptive should it be in terms of the technology, site location, design concept and input requirements?
 - b. What do you envision to be the key risks and opportunities associated with this transaction structure?
 - c. Do you have a preference as to a Greenfield or Brownfield approach to the project? Please explain.
- 7) Which structure (a privately owned and operated facility with a Federal off-take agreement or a DBFOM with availability payments), if either, do you consider preferable? Why or why not? Please explain and offer suggestions as to any other suggested approach.
- 8) Do you believe that there may be additional commercial opportunities associated with this project? If so, please explain.
- 9) What additional rights, if any, might Reclamation consider offering private investors in order to create additional commercialization and/or monetization opportunities in support of this project?
- 10) Recommend specific steps that Reclamation might take to motivate innovation and attract private sector interest in this project.
- 11) What additional rights, if any, might Reclamation consider offering private investors in order to create additional commercialization and/or monetization opportunities in support of this project?
- 12) Provide any specific suggestions and refinements to the proposed transaction structure and/or allocation of risk, rights and responsibilities that you believe would result in best value for Reclamation and the public.

Appendix F – Arkansas Valley Conduit

Background and Overview

Authorized by Congress in 1962, as a feature of the Fryingpan-Arkansas (Fry-Ark) Project, the Arkansas Valley Conduit (AVC) is a regional water delivery system designed to meet existing and future municipal and industrial water demands in the Lower Arkansas River Basin of southeastern Colorado. AVC will convey water treated at an existing water treatment plant from Pueblo Reservoir through approximately 227 miles of buried pipeline and related facilities to roughly 40 towns and rural domestic water supply systems responsible for final disinfection. The 40 water providers involved in the project serve more than 53,000 people.



The Southeastern Colorado Water Conservancy District was formed in 1958 to develop and administer the Fry-Ark Project. Communities in the Lower Arkansas River Basin have signed a memorandum of agreement with the Southeastern Colorado Water Conservancy District to participate in the AVC because they currently rely on groundwater wells for their drinking water, which contain high levels of naturally occurring radium and uranium. Twelve water providers have concentrations of these elements in water supplies that exceed Federal Safe Drinking Water Act mandatory standards. As a result, the State has issued enforcement actions requiring these water providers to remove the contaminants or find a better quality water source. In addition, water providers in the lower Arkansas River Basin generally have difficulty meeting non-mandatory secondary drinking water standards for salts, sulfate and iron.

AVC KEY PROJECT ELEMENTS:

- Water filtering plant at the Whitlock Treatment Plant in Pueblo.
- Pumping stations at Pueblo and at the spur to Eads.
- Interconnect on Pueblo Dam between South and North Outlets.
- Regulating tank south of Pueblo.
- Pipeline and spurs connecting 40 communities.

The AVC is needed to supply high quality water via a least-cost regional system. It will provide a new regional water source for residents and industries in the Lower Arkansas River Basin and protect the public against consumption of drinking water contaminants that present risks to human health.

The existing Fry-Ark Project Act, as amended in 2009 by Public Law 111-11, authorizes appropriations for construction of the AVC; allows miscellaneous revenues to be used to construct AVC; and, upon completion, provides for miscellaneous

revenues to be credited to the actual costs of AVC. P.L. 111-11 also provides a cost sharing plan of 100% percent Federal financing and 35 percent non-Federal repayment, over a period of 50 years, starting after project completion. The repayment by non-Federal sources includes interest at a rate of 3.046 percent.

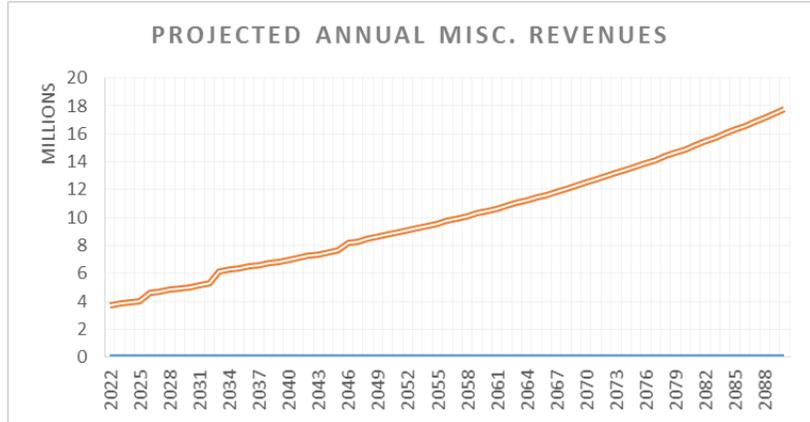
Competing funding priorities and water infrastructure needs make it difficult to fund new large-scale water projects like the AVC (currently estimated construction costs range from \$400 to \$600 million). Through fiscal year (FY) 2016, approximately \$21 million in Federal funding has been provided for AVC. The FY 2017 President's budget request for the Project was \$3 million. Ongoing Reclamation activities focus on pre-construction work, including data collection, engineering, design, and land access coordination.



Reclamation recognizes the importance of the AVC to the communities it would serve; however, it cannot guarantee if or when Federal funding will become available for construction of the project. Moreover, protracted appropriations will increase project costs exponentially, while deferring benefits. Consequently, in coordination with other Federal agencies, the State of Colorado, and Southeastern Colorado Water Conservancy District, Reclamation is exploring alternative finance and delivery options for the Project.

Alternative Finance and Delivery Considerations

Given that the timing and availability of Federal funding represent a significant obstacle for this project, consideration is being given to alternative approaches, including allowing for a locally led P3 to address the design, construction, financing, and operation and maintenance of the system. Even if legislative initiatives are required, project stakeholders are interested in exploring all options that may reduce or eliminate funding risk, thereby accelerating delivery of AVC and advancing public benefits. Project sponsors are also looking for finance and delivery options that will encourage innovation, optimize risk allocation, address life-cycle asset management and, ultimately, result in efficiencies and life-cycle cost savings.



While Reclamation has analyzed a number of potential transaction structures, such as a locally-led DBFOM, the key challenge has been to identify alternative and affordable funding sources to ensure the project would be financially viable without Federal funding. Southeastern Colorado Water Conservancy District anticipates revenues from contracts for the use of excess storage capacity in Pueblo Reservoir will be made available to repay investments in the project, although this is not sufficient to fund the entirety of the project at current estimated revenue levels. As a result, other commercialization, monetization and revenue generation opportunities are also being explored, including, for example, monetizing cost savings and economic benefits.

Arkansas Valley Conduit Questionnaire

- 1) Do you believe that AVC lends itself to an alternative finance and delivery approach? Why or why not?
- 2) Could leveraging alternative finance and delivery (if financially viable) reduce costs or provide other benefits to stakeholders? Please explain.
- 3) Given the level of uncertainty regarding Federal funding, what (if any) alternative funding structures might you propose?
- 4) Can P3 or alternative finance and delivery structures be leveraged effectively for projects in rural or poorer communities? What mechanisms might Reclamation or others leverage to address funding shortfalls due to affordability and/or small population issues?
- 5) What do you consider to be the key risks, challenges and opportunities associated with any eventual AVC P3 transaction?
- 6) Disregarding for the moment existing legislative and policy constraints, what potential P3

structures would you recommend to construct this project more quickly and more cost effectively?

- 7) Given the location and nature of the Project, where do you foresee significant opportunities to employ innovative design, construction methods, maintenance regimes, and/or materials to acquire efficiencies in cost and schedule?
- 8) What revenue generation opportunities might be available to help address the funding gap? Please explain.
- 9) What additional rights, if any, might project sponsors consider offering private investors in order to create additional commercialization and/or monetization opportunities in support of this project?
- 10) Recommend specific steps that Reclamation could take to attract private sector interest, motivate innovation and reduce risks associated with this project.
- 11) Provide any specific suggestions as to potential transaction structures for AVC.