

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: _____

Option Name:

Colorado River Augmentation - Clark's Fork to Green River Import
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Description of Option:

<p>This import alternative involves diverting water from Clark's Fork of the Yellowstone River in Wyoming and delivering it to the Green River Basin. Two routes were developed for this alternative. Option 1 minimizes construction within National Forest lands and in areas that may be deemed environmentally sensitive. Option 2 investigates the straightest route to the headwaters of the Green River. Consideration was also given to diverting water from Clark's Fork to the Snake River and then from the Snake River to the Green River. However, the headwaters of the two rivers are within 50 miles of each other. Consequently, this analysis assumed a direct delivery to the Green River Basin.</p>

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

Wyoming

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.

<p>75,000 AFY- Wyoming is allocated 60 percent of the depletable yield of Clark's Fork, and Montana is allocated the other 40 percent. According to the 1973 Wyoming Water Plan, Wyoming's 60 percent allocation is 428,400 AF in an average year. Currently, very little water is depleted from this river basin. However, based on conversations with John Shields, State of Wyoming Interstate Streams Engineer, this river has been designated wild and scenic and diverting significant volumes for out-of-basin depletion may not be feasible.</p> <p>It was assumed that 75,000 AFY (approximately 20 percent of Wyoming's depletable allocation) could be exported to the Green River Basin. This is an arbitrary value and additional studies should be performed to determine a yield acceptable to the</p>

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current stakeholders of Clark's Fork water. In addition, if additional water could be diverted, a better economy of scale (unit cost of water) would be realized.

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.

Option 1 includes four pumping stations, one hydropower station, 45 miles of 126-inch diameter pipe, 150 miles of 51-inch diameter pipe, and approximately 30 miles of tunnel. Option 2 includes five pumping stations, one hydropower station, 45 miles of 126-inch diameter pipe, 67 miles of 51-inch diameter pipe, and approximately 30 miles of tunnel.

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.

Option 1

Estimated Capital Costs: \$2,051M

Estimated Annual O&M Costs: \$43M/Yr

\$3180/AF

Option 2

Estimated Capital Costs: \$1,562M

Estimated Annual O&M Costs: \$39M/Yr

\$2500/AF

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

Extensive permitting would be required. Key permit issue may include construction within National Forest and obtaining a favorable record of decision on the Environmental Impact Statement

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.

Legal Considerations: Past concepts have been rejected in Federal Court.

Public Policy Considerations: Yellowstone River Basin Interstate Compact – Article 10 requires approval of both Montana and Wyoming to agree to any out-of-basin diversions.

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

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Yellowstone River Basin Interstate Compact – Article 10 requires approval of both Montana and Wyoming to agree to any out-of-basin diversions.

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.

Reliability of the supply depends primarily on the water rights and interstate compact agreements made.

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

Water quality in the Clark's Fork of the Yellowstone River at the proposed diversion point is considered to be good as a M&I source water.

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
Option 1 The four pumping stations would have combined power requirement of approximately 90,000 hp.	unknown
Option 2 The five pumping stations would have combined power requirement of approximately 83,000 hp.	unknown

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
	One hydropower facility is needed that will generate 2.0 Mwatts of power

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

Location(s)	Anticipate Benefits or Impacts
	none

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

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Location(s)	Anticipated Benefits or Impacts
	Air Quality: n/a
	Ecosystems: Detailed biology studies would be required to determine the actual instream flow requirements and diversion limitations. Environmental issues include the effect of reduced river discharge on biological communities, especially anadromous fish species, and impacts due to construction of facilities

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

none

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

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