CRD Conceptual Market Structure
For a Potential Demand Management Program
In the State of Colorado
Version 3.0, April 7, 2022

This conceptual proposal is prepared by the Colorado River District Staff at the request of the Colorado River District Board. The proposal is not a recommendation by the Colorado River District staff, nor does it represent the position of the District Board. It is merely an effort to move what has largely been a theoretical, process-oriented conversation around demand management into a more practical examination of potential market structure and rules. Many organizations refer to such a proposal as a "strawman", but given the often-controversial nature of demand management, staff at the River District refers to this proposal as a "punching bag" *i.e.,* something concrete to start the conversation but designed for everyone to feel free to criticize, improve upon, or reject.

Prior to diving into the particulars of a proposed market structure, it is important to clearly identify and define what is meant by the term "demand management program" in the context of the Upper Basin States within the Colorado River Basin. On March 19, 2019, the seven basin states of the Colorado River basin executed and delivered to Congress a series of agreements commonly referred to as the Drought Contingency Plan (DCP). Among those agreements was a document succinctly titled, "Agreement Regarding Storage at the Colorado River Storage Project Act Reservoirs Under an Upper Basin Demand Management Program" more commonly referred to as the "Upper Basin Demand Management Storage Agreement" or simply the "Demand Management Storage Agreement." This Demand Management Storage Agreement was not actually an agreement to establish a demand management program, but rather an agreement signed by the Upper Division states of Colorado, Wyoming, Utah, New Mexico and the Secretary of the Interior to study the feasibility of such a program and, if deemed feasible, to provide a storage account in the Initial Units authorized under the Colorado River Storage Project (CRSP) Act (Powell, Flaming Gorge, Aspinall, and Navajo). While that agreement did not expressly define the term "Demand Management," it did state that "[t]he purpose of an Upper Basin Demand Management Program will be to temporarily reduce Consumptive Uses in the Upper Basin or augment supplies with Imported Water, if needed in times of drought, to help assure continued compliance with Article III of the Colorado River Compact without impairing the right to exercise existing Upper Basin water rights in the future."

In plain language, "demand management" as contemplated by the Upper Division states, is a government sponsored program that incentivizes and enables the voluntary, temporary and compensated reduction of consumptive use of water and store the conserved water in one or more of the Initial CRSP reservoirs. The sole purpose of the program would be to assist the Upper Basin with its effort to remain in compliance with its non-depletion obligation of Article III of the 1922 Colorado River Compact.

A demand management program is not something that the State of Colorado can, or should, do on its own. Pursuant to the Upper Basin Demand Management Storage Agreement, any such program can only be done with the approval and consent of the four Upper Division states acting through the Upper Colorado River Commission (UCRC).

The endeavor of establishing a Demand Management Program is truly the creation of a government sponsored water market because the program would require compensation to be paid to willing water right owners to reduce consumptive uses. Given that this potential government-created market would most likely be funded by taxpayers, it is very important to design the program so that it has a high likelihood of success in meeting its objective, i.e., prevent a violation of compact obligations while at the same time, avoiding significant negative consequences to the communities and stakeholders within the Upper Basin. A market set up by the government, funded at least in part by taxpayer dollars, to meet a collective government obligation, by its very essence is not and never will be a free market. Restrictions designed to protect the communities and mitigate adverse impacts are appropriate and necessary.

In order for water to be considered eligible for compensation under this potential program, the Demand Management Storage Agreement requires that a water user and state claiming the contribution of the water must be able to demonstrate that the water right was physically and legally available and that but for the participation in this program, that water would have been consumed in the year of contribution.

The Colorado River District, together with many partners, has previously explored potential risks and impacts of such a program through a number of efforts including, but not limited to, the Compact Risk Study, the Secondary Economic Impact Study and the Colorado River District Demand Management Stakeholder Report. The findings of those earlier works have informed the market structure presented here, but this report does not repeat and/or rehash the findings, rationale or recommendations contained in those works. We encourage all who are reading this report to familiarize themselves with those earlier works as well as the work product of the Colorado Water Conservation Board and its various Demand Management Workgroups.

The following is one suggestion for how such a demand management program or market might be structured. This proposed structure is being offered to provide a foundation for a critical dialogue by members of the Colorado River District Board of Directors and constituents of the Colorado River District. It is not a recommendation and/or policy statement of the staff and/or Board of the Colorado River District. It is important to point out that it is the State of Colorado, not the Colorado River District, that will make the ultimate decision as to whether such a program is feasible and advisable for the state of Colorado, and if such a program is deemed feasible, it is the State of Colorado that will establish the market structure and rules governing such a program. This proposal is solely intended to assist the Colorado River District staff and Board in their efforts to provide meaningful input to the State of Colorado.

I. INTERSTATE STRUCTURE

A. Each Upper Division state shall be responsible for contributing an amount of water to the Upper Basin Demand Management Storage Account equal to that state's proportionate allocation of consumptive use of water established in the 1948 Upper

Basin Compact. The respective percentages are: Colorado, 51.75%; New Mexico, 11.25%; Utah, 23%; and Wyoming, 14%.

The Upper Basin Demand Management Storage Account shall be a single account, for the sole use by and for the benefit of maintaining the Upper Basin's compliance with the 1922 Colorado River Compact. Each state must contribute its proportional share to the account. There shall be no sub-accounts. The proportionate allocation among the Upper Division States shall be calculated on a five-year running average.

Colorado's creation and implementation of a demand management program shall be contingent upon the other three states in the Upper Division establishing a program (though the other states may adopt different program structures and rules).

Upon establishment of a program, the UCRC, at a date certain each year (August 1) shall set a total annual goal of conserved consumptive use depending upon the developing and anticipated hydrology for the following water year, (*i.e.*, dry, average, wet) and each state shall be responsible for producing its proportionate share of that annual goal. For instance, if the UCRC predicts a wet year and sets the annual collective goal of 50,000 AF, the state of Colorado shall be responsible for producing and delivering to one or more Initial CRSP reservoir, 51.75% of 50,000 or 25,875 AF. If, on the other hand, the UCRC predicts a dry year and sets a collective goal of 10,000 AF, Colorado's share would be 5,175 AF.

B. There will need to be agreed upon standard, uniform measurement of consumptive uses, measurement of conserved consumptive uses, verification, and transit loss methodologies.

C. There will also need to be agreed upon consequences for states which do not meet their target numbers.

III. INTRA-STATE COLORADO

A. Single Buyer

The State of Colorado, or its regional/local designees shall be the sole buyer in the marketplace.

B. No Additional Trans-Mountain Diversions

As a condition precedent, in compliance with Principle 4 of the Conceptual Framework of Colorado's Water Plan, and in order to avoid to the operation of a Colorado River demand management program being used as a de facto augmentation plan for new transmountain diversions, no new additional transmountain diversion projects shall be permitted, endorsed, funded or supported in any manner by the State of Colorado.

C. Voluntary, Temporary, Compensated

Participation in the program by individual water users shall be voluntary, temporary and compensated.

D. Non-Injury to Vested Water Rights

No action or transaction authorized or funded by this program shall cause injury to an existing water right. The analysis of non-injury must be made by the state engineer's office through a process that involves actual notice to all potentially effected water right owners, providing at least a sixty-day notice to those parties by U.S. Mail and publication in the applicable water division resume. The injury analysis shall provide for a right to an evidentiary hearing, and the right to a de novo appeal in water court if the State Engineer makes a finding of non-injury.

E. Non-use/Abandonment

Non-use of water through this program shall not be considered in any abandonment and/or calculation of historic consumptive use.

F. Exclusive Program

Conserved water produced by any means other than those authorized herein or by another statutorily authorized program in the state of Colorado shall not receive funding under this or any other state program and the water produced therein shall not be counted as conserved consumptive use under the Upper Basin Demand Management Storage Agreement.

G. No Interstate Water Marketing

Nothing in this program shall authorize and/or encourage interstate marketing of water.

H. Reduction in Consumptive Use, Reservoir Operations

A condition precedent to water being counted as contributed to the Demand Management Program shall be that there is an actual reduction in consumptive use during the same water year. A reservoir operator cannot simply release water to the stream for delivery to a CRSP unit and count it as demand management water without also demonstrating a corresponding reduction in consumptive use of water within the water user's system equal to the amount released and delivered from the reservoir.

i. Water released from reservoirs for delivery to a CRSP unit shall be made at the time of year to insure maximum delivery and minimum transit loss and/or shepherding complications. (*i.e.*, During winter months and/or at the peak of the hydrograph). There was not consensus by the CRD Board on this issue, however a majority of Board members who spoke on this issue supported "maximum delivery" as the primary goal but also voiced support for environmental and local economic considerations being considered and, where possible factored into any release schedule or timing.

ii. Water conserved in one year may be stored in non-CRSP reservoirs within the state of Colorado in order for the delivery of said water to a CRSP reservoir in a subsequent year to be timed to achieve the maximum delivery and minimum transit loss on its journey to a CRSP reservoir. The calculation of optimal timing of delivery shall include evaporative losses from the reservoirs and comparative transit losses during different times in the hydrologic cycle.

I. Intra-State Proportionality

Contributions of water toward the state's obligations under a demand management program shall be geographically allocated based upon a region or sub-basin's percentage of statewide post-compact water use. However, the obligation can be satisfied by either pre-or post-compact water rights.

i. The intrastate proportional share between the East and West Slope of Colorado shall be based on percentage of post-compact consumption. (Approximately 57% and 43% respectively from the Colorado River Risk Study Phase III).

ii. The proportional share between Colorado River sub-basins in Colorado shall be based on the percentage of post-compact consumption.

Figure 1: Colorado River Post Compact Use by River Basin

Colorado's Total Average Annual Consumptive Use for Colorado River Basin: 2.53MAF						
		Post Compact Depletion	Total Use (Pre and post compact)	*Post Compact Percentage of Statewide Post Compact Use*	Assumption: a 100KAF annual statewide obligation	Percent of specific basin's total Colorado River use
	Pre-Compact Acre Feet	Acre Feet	Acre Feet			
Yampa	138,544	58,438	196,982	6.30%	6,300	3.2%
White	50,173	11,887	62,060	1.30%	1,300	2.1%
Colorado In Basin	574,997	94,260	669,257	10.10%	10,100	1.5%
Transmountain Diversion	19,173	531,956	551,129	57.10%	57,100	10.4%
Gunnison	493,879	57,271	551,150	6.10%	6,100	1.1%
Southwest	322,561	178,157	500,718	19.10%	19,100	3.8%
Statewide Total Use	**1.6M**	**931,969**	**2,531,296**	**100%**		

iii. Regional targets should be roughly proportional over time (e.g., on a rolling 5 year average) and establish thresholds for each basin, while supporting voluntary participation in the program by individual water providers/users.

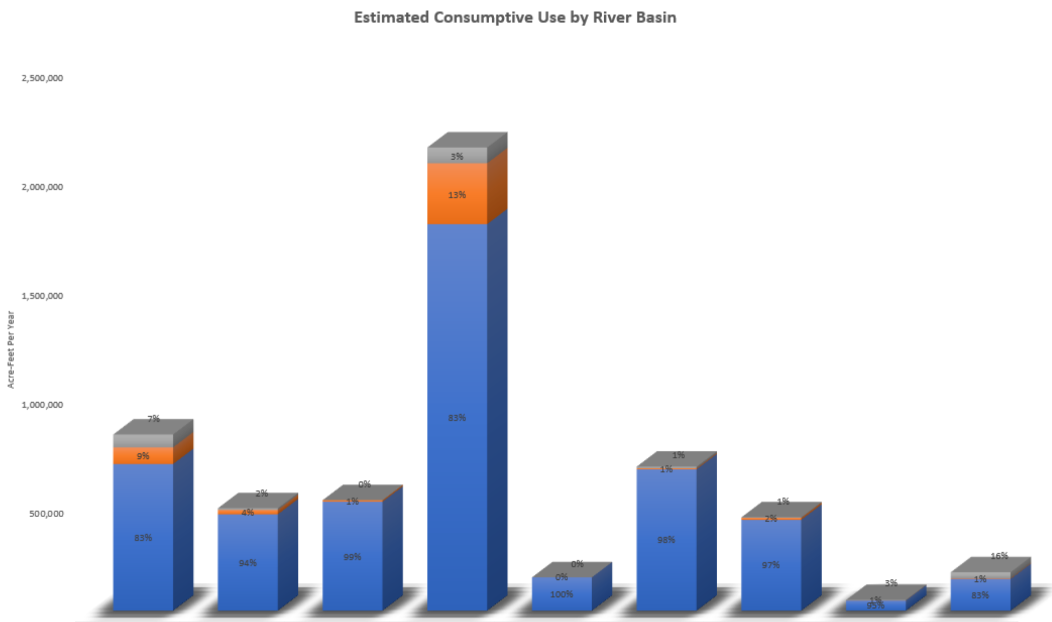
iv. For voluntary participation to work to meet these desired participation levels, compensation must be adequate to encourage voluntary participation and will vary by basin and between Front Range and West Slope to reflect different water market values. Prices paid by the state and/or its regional/local designees shall be variable, set depending upon the price required in each basin to acquire enough voluntary participation to meet the regional target set above.

v. The state of Colorado may designate regional or local agents (Water Conservancy Districts, Water Conservation Districts, Large Irrigation Districts/Association) to operate the demand management program within a specified geographic region. Any such designee shall be required to operate in an open transparent manner and shall be subject to audit and examination to assure compliance with all rules of the demand management program.

a. The state may grant waivers to the rules of the state program to regional or local operators so long as those waivers do not frustrate the underlying purposes of the program, (*i.e.*, contribution of water to the Upper Basin demand management storage account and/or protection from disproportionate regional impact).

J. Each type of water user sector shall contribute a proportional share of consumptive use within each basin.

Figure 2: Estimated Consumptive Use by River Basin



	Arkansas	Colorado	Gunnison	Total South Platte	North Platte	Rio Grande	Southwest	White	Yampa
Industrial	58,720	7,784	269	72,013	-	7,860	2,277	1,600	27,961
Municipal	76,284	20,368	6,926	278,867	161	4,298	8,918	625	2,259
Agriculture	671,449	441,062	498,747	1,769,236	152,698	647,369	416,124	46,882	145,817

*Consumptive use estimates are based on broad consumptive use ratio estimate for general understanding of water use and are applied to industry depletions from the 2019 Colorado Water Plan Technical Update. Consumptive use ratios were approximated as follows:

Agriculture - Based on Tech Update IWR vs Diversion Demand ratio and ranged from 19%-64% consumption of diversion demands,
Municipal Indoor - 10% consumptive, Municipal Outdoor - 90% consumptive, Municipal Non-Revenue - 10% consumptive,
Industrial - 100% consumptive.

K. Municipal/Domestic Sector

i. Contributions by municipal and industrial water providers do not need to be temporary. Municipal/domestic water providers that enact permanent water conservation plans which contribute actual wet water to the demand management storage account shall be compensated for doing so as long as the conserved water is contributed to the demand management storage account and not utilized for future growth.[1]

a. It is conceivable that a utility could enact permanent water restrictions, land use code changes, building code changes or operational reductions which result in a reduction in

[1] To the extent this requires a modification to the Upper Basin Demand Management Storage Agreement, the state of Colorado and the UCRC shall advocate for that modification.

consumptive use, which for some period of time is contributed to the Upper Basin storage account and then later utilized for future growth within that system. In such a case, it would be appropriate to compensate the utility for the years in which water is physically contributed to the storage account.

L. Industrial Sector

Contributions by industrial water users resulting from permanent plant closures shall be counted as contributions to the storage account for a period of 20 years. Water contributed by an industrial user during a transitional time following a plant closure, prior to that industrial water user putting that water to a consumptive use shall be considered a contribution to the storage account.[2] We would advise that prior to any market rules being established, that the state of Colorado have significant and detailed discussions with the entities that own this water before moving forward with this market structure element.

M. Agricultural Sector

i. Any agricultural water right, regardless of type of crop or productivity of land irrigated, can be utilized in the demand management program.

ii. A water right owner must quantify and demonstrate the reduction in consumptive use. Such reduction in consumptive use may come from:
   a. complete, full season fallowing;
   b. partial season fallowing;
   c. deficit irrigation; or
   d. other technique resulting in a demonstrable, quantifiable reduction in consumptive use.

iii. In order to encourage good soil health practices, prevent erosion, weed infestations, and airborne dust, participants in the program shall not allow invasive weed infestations and/or complete denuding of the crop land participating in the project. Cover crops and/or site-specific soil health treatments shall be required as part of the program for any fallowed land. To the extent that a cover crop and/or some water consumption is necessary to achieve this goal, the consumptive use associated with the technique employed must be subtracted from the quantification of conserved consumptive use under the program.

[2] See, footnote 1.

iv. No more than 30% of the irrigated land in any one sub-basin shall be fallowed under this program in any given year, and no more than 10% of the irrigated land in any one sub-basin shall be fallowed under this program for more than two consecutive years.

v. No more than 30% of any federal project shall be fallowed under this program in any given year.

vi. No more than 30% of any ditch system irrigating more than 200 acres shall be fallowed under this program in any given year.

vii. No more than 30% or 200 acres (whichever is less) of land owned by a single entity (person, trust, corporation, limited liability company or group of related persons or entities) shall be fallowed under this program in any given year.

a. An exception to the rule stated above shall be made for land classified as "Marginally Productive" (The definition/classification of which will need to be agreed to at a later date). Up to 60% or 600 irrigated acres classified as Marginally Productive owned by one entity or series of related entities may be fallowed in any given year under this program and limitations with respect to the federal project or ditch system shall be increased up to 50% if all of the land fallowed qualifies as Marginally Productive. There was not unanimous consensus on this point by the CRD Board. Many on the Board supported the concept of a pilot project.

viii. No irrigated agricultural property shall be fallowed under this program for more than 2 consecutive years or 4 total years out of any running 10-year period.

a. An exception to the rule stated above shall be made for Marginally Productive land. Irrigated land classified as Marginally Productive may be fallowed under this program for a period not to exceed 10 consecutive years. See, discussion under vii., a. above.

ix. The market price should be set at the average of 125% to 150% of the average of the value of the crop production for a region or sub-basin (this approach was recommended by the Water Bank Work Group's economic consultant in the September 2020 final Upper Basin Demand Management Economic Study in Western Colorado).

a. In the event a sub-basin market is oversubscribed, there shall be a lottery.

b. In the event that the market in any sub-basin is undersubscribed, the program price shall be incrementally increased until the market is fully subscribed.

c. Conserved consumptive use water generated from Marginally Productive lands shall receive a 5% increase above the regional market price.

d. In the event land being fallowed under this program would otherwise be farmed by someone other than the owner of the property (*i.e.*, tenant farmers) at least 25% of the payment under this program shall be made directly to the tenant farmer.

x. Payments under this program shall only be made, and contributions of conserved consumptive use shall only be counted as contributed to the Upper Basin storage account, if the water supply for the underlying water right was physically and legally available in the year and during the irrigation season for which the property was enrolled in the program. Given the timing of the enrollment process (most likely, the fall preceding an irrigation season), it is possible that there will be cases of a property enrolled in the program not receiving payment under the program because the underlying water right was not physically or legally available to be consumed in that season due to poor hydrology. Directors voiced support for pro-rata payments to producers who participate but whose water was legally available only during part of the irrigation season. A few CRD directors expressed support for some form of small "participation payment".

N. Community Mitigation Fund

In every sub-basin, a payment equal to 5 to 15% of the total program payments to agricultural producers shall be made by the program to an appropriate community foundation or organization who shall utilize the funds to assist businesses and individuals (other than agricultural producers who have received payment under the program), who have a documented negative economic hardship resulting from the fallowing of land under this program.

O. Environmental Considerations

i. In selecting offered agricultural lands for inclusion within the program, the state or its regional/local designee may consider the following environmental criteria and shall be impowered to incentivize and/or disincentivize the inclusion of lands in the program through an adjustment of payments in the range of plus or minus 5% from the regional price as determined by the reverse auction market set forth above as follows:

a. migratory bird habitat impacts;
b. endangered species habitat and/or target flow impacts;
c. late season return flow impacts;
d. Contribution to poor stream water quality, i.e. salinity/selenium; and/or
d. instream flow enhancements.

P. Program Funding

i. No more than 40% of the funding for this program shall come from state of Colorado tax revenues.

ii. The balance of program funding shall come from one or more of the following sources:
    i. Federal government;
    ii. Other parties/sectors benefiting from the program including but not limited to:
        a. Lower Basin states and/or water users;
        b. CRSP power customers; and
        c. Recreational and/or Environmental non-governmental organizations.