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Appendix B

How other states have worked to meet their gap

Arizona:

Arizona Water Banking: The Arizona Water Banking Authority (AWBA; Water Bank) was established in 1996 to increase use of the state's Colorado River entitlement and develop long-term storage credits for the state. The five person board is made up of the Director of the Arizona Department of Water Resources (ADWR), who is chair, the President of the Board of the CAP and three persons appointed by the Governor. AWBA "banks" unused Colorado River water to use in times of shortage to firm Arizona's water supplies. These water supplies help to benefit municipal and industrial users and communities along the Colorado River, fulfill the water management objectives of the state, store water for use as part of water rights settlement agreements among Indian communities, and assist Nevada and California through interstate water banking. Through these mechanisms, the AWBA aids in ensuring long-term water supplies for Arizona.

Each year, the AWBA pays the delivery and storage costs to bring Colorado River water into central and southern Arizona through the Central Arizona Project canal (this is a federal/municipal project and is 336 miles long). The water is stored underground in existing aquifers (direct recharge) or is used by irrigation districts in lieu of pumping groundwater (indirect or in-lieu recharge). For each acre-foot stored, the AWBA accrues credit that can be redeemed in the future when Arizona's communities or neighboring states need this backup water supply.

Central Arizona Project: The first State Water Plan published in the mid-1970s noted that the growth of Arizona cities and industries could only be assured if groundwater pumping was offset by the use of CAP water. In the late 1970s, there was an impasse between the farmers and the municipal and mining interests regarding groundwater management. Governor Bruce Babbitt convinced the U.S. Secretary of the Interior at that time, Cecil Andrus, to issue an ultimatum: unless Arizona enacted tough groundwater laws, he would refuse to approve construction of the Central Arizona Project.

Soon the cities, mines and agriculture asked Babbitt to mediate the discussions regarding groundwater. One of the first items of agreement was creation of the Arizona Department of Water Resources. CAP was completed in 1993, costing \$3.7 billion to construct. The Arizona Department of Water Resources continues to financially support the project, but it is primarily run by a regional commission and was approved by Congress as a federal project.

California:

State Water Project: California has a State Water project, which provides drinking water for over 25 million people and generates an average 6.5 million mega-watt hours of hydroelectricity annually. It also provides water to 750,000 acres of irrigated land. Construction began in the late 1950s, with major funding approved through a 1960s bond measure. Bond measures paid for most of the project, and annual operation and maintenance costs (including debt service) are primarily paid for by beneficiaries, although the state pays for the fish and wildlife benefits. The state water project is ongoing, with additional facilities being planned. The project started as a state-supported federal project.

Quick Facts

- The Project includes 34 storage facilities, reservoirs and lakes; 20 pumping plants; 4 pumping-generating plants; 5 hydroelectric power plants; and about 701 miles of open canals and pipelines.
- By the end of 2001, about \$5.2 billion had been spent to construct SWP facilities.

CALFED Bay-Delta Program: In 1994 California and federal entities signed an agreement to manage the competing demands in the Sacramento-San Joaquin Delta. There are numerous competing environmental and water supply needs related to the Delta. This is a large and ongoing component of the State Water Project.

In July of 2012, Governor Jerry Brown joined Secretary of the Interior Ken Salazar to announce plans to move a project forward that would put two tunnels under the bay to stabilize water deliveries, which have been reduced by court order over concerns for the endangered Delta Smelt. This is the latest version of the peripheral canal. There is significant opposition to the project from environmentalists, salmon sports fishermen, and local farmers, although Governor Brown said the tunnels would be the "preferred alternative" for a plan that would ensure the "co-equal" goals of reliable water supplies and delta habitat restoration. There will still be permit requirements, and an analysis is due next year.

Quick Facts:

- The project could deliver up to 7 million acre-feet.
- The proposed system would cost about \$19 billion to build, operate, and manage, along with \$3 to 4 billion for habitat restoration.
- The habitat costs would be funded through bonds that would be paid from the state's general fund and would require voter approval. Water users will pay for the cost of the construction and operation of the tunnels.

Read more:

<http://www.sfgate.com/science/article/New-state-water-plan-tunnels-under-delta-3735999.php>

State Water Plan: California also has a State Water Plan. Their five year update was published in 2013, and includes a financial plan, which is "a necessary step in implementing the strategic plan and many other California Water Plan recommendations. This new financial focus will identify critical priorities for State investment in integrated water management activities. It will also recommend innovative, stable, equitable, and fiscally responsible financial strategies and revenue sources should any funding gaps be identified as part of the water plan's development." The plan will also focus on regional solutions.

Colorado:

In addition to the technical and financial support provided by almost every state, Colorado has supported several projects in various ways. These include being a participant in a project (e.g., Chatfield Reallocation), purchasing a block of water to be able to market to various interests in the future (e.g., Animas-La Plata), providing loans and/or grants to assist a project in moving forward (e.g. Prairie Waters, Arkansas Valley Conduit), and the passing of a CWCB resolution in support of a project (e.g., Chatfield Reallocation, WISE Partnership). Several Governors have also weighed in on

water projects, including pressure to move permitting forward and explicit support for specific water projects. The latest example can be found here: http://www.denverpost.com/news/ci_21314294. Other support includes working with water providers who are working collaboratively with other stakeholders to find creative ways to administer these projects.

CWCB also undergoes significant planning activities, which support understanding Colorado's water supply gaps and avenues to meet them. The Statewide Water Supply Initiative (SWSI) gathers statewide information on municipal, industrial, agricultural, environmental, and recreational needs as well as projects and methods to meet those needs. In so doing, it provides a strategic planning framework. CWCB also staffs the Basin Roundtable and Interbasin Compact Committee processes. The stakeholder groups found across the state are charged with assessing their needs and determining projects and methods to meet those needs. SWSI 2010 used data from the basin roundtables and IBCC. SWSI 2010 also has a list of recommendations which are important components to meeting Colorado's water gaps.

New Mexico:

Regional Water Planning: The New Mexico Legislature created the state's regional water planning program in 1987 and gave the Interstate Stream Commission the responsibility of funding, overseeing, and approving the plans of the 16 regions. Through the program, regions are charged with the inventory of existing water supplies, projecting future demand, identifying supply inadequacies, and developing strategic alternatives to meet supply shortages. The New Mexico State Water calls for the State to "support and adequately fund the completion, update, and implementation of regional water plans."

San Juan-Chama Project and Navajo Nation Water Rights Settlement: The Governor, State Engineer, and the Interstate Stream Commission Director testified in support of the Settlement and associated Project. The State contributed nearly \$50 million dollars to the project.

Taos Pueblo Water Rights Settlement: The Governor, State Engineer, and Interstate Stream Commission Director testified in support of the Settlement. The State, has contributed \$1.5 million dollars while agreeing to future appropriations of \$18.5 million dollars over time.

Aamodt Water Rights Settlement: The Aamodt Settlement (Pueblos of Pojoaque, Tesuque, Nambe & San Ildefonso) was supported by the Governor, State Engineer, and the Interstate Stream Commission Director. No appropriations have been made to date, yet the State is potentially on the hook for up to \$50 million dollars.

Eastern New Mexico Water Supply Project: The Governor, State Engineer, and the Interstate Stream Commission Director supported the Settlement. The State has contributed \$20 million dollars while agreeing to fund around \$75 million dollars over time.

San Juan-Chama Shortage Sharing Agreement: The parties involved in the Navajo Dam and San Juan River operations, together with the New Mexico State Engineer's Office and the Bureau of

Reclamation, came to an agreement to share water losses (as opposed to traditional state water rights administration). If the shortage agreement is not adhered to, the State will administer the system in a conventional manner.

Texas:

Texas has an active regional planning effort that identifies projects and then works to fund projects that are consistent with the plan or, for some funding sources, explicitly recommended as water management strategies in the regional or state plans. They also have their own Commission on Environmental Quality which grants water right permits only if (some exceptions do apply) they are consistent with the regional water plans and the state water plan. The plans are updated every five years, and the Texas Water Development Board provides technical and administrative support. The legislature also designates “sites of unique value for the construction of reservoirs” as well as stream reaches with “unique ecological value.” There are several recommendations in the 2012 state plan that have not yet been implemented. These include the recommended purchase of reservoir sites and implementation of specific water projects and methods that go through an evaluation process.

Quick Facts

- Municipal conservation strategies are expected to result in about 650,000 acre-feet of supply by 2060, with irrigation and other conservation strategies totaling another 1.5 million acre-feet per year.
- The planning groups recommended 26 new major reservoirs projected to generate approximately 1.5 million acre-feet per year by 2060. Other surface water strategies would result in about 3 million acre-feet per year.
- Recommended strategies relying on groundwater are projected to result in about 800,000 additional acre-feet per year by 2060.

Utah:

Lake Powell Pipeline: Utah is planning, buying up the right of way, and has financing in place for construction of the Lake Powell Pipeline, to deliver water from the Colorado River (from Utah's unused allocation) to the St. George area in Southwest Utah. Utah's Board of Water Resources, under the [Lake Powell Pipeline Development Act](#) passed by the Utah State Legislature in 2006, is authorized to build the Lake Powell Pipeline. The legislation authorizes a pipeline to take water from Lake Powell, and transport it to Washington, Kane and Iron counties. The water diverted into the pipeline will be a portion of Utah's Upper Colorado River Compact allocation, and will consist of water rights to be held or acquired by the three water districts and the Board of Water Resources. The state will build the project and the districts will repay the costs through water sales.

Quick Facts

- The pipeline will total 177 miles from Lake Powell to Iron County
- The project will deliver 100,000 acre-feet
- Deliveries are planned to begin in 2020
- The project will cost over \$1billion in capital costs

West Desert Pumping Project: The Utah legislature authorized a major pumping project to protect the risk of flooding out of the Great Salt Lake.

Bear River Development: Bear River is often referred to as Utah's last untapped river. In the Bear River Development Act, passed by the Legislature in 1991, the Division of Water Resources is directed to develop the surface waters of the Bear River and its tributaries. The act also allocates water among various counties and provides for the protection of existing water rights. The act allocates a total of 220,000 acre-feet of water annually. The total cost of the project is estimated to be between \$130 million and \$260 million, depending upon which dam site is chosen. Most of the required conveyance and treatment systems will be the responsibility of the contracting entities. An article in the Utah Environmental Law Review states "According to several administrative documents, the state intends to make Bear water available within the next two decades, and it appears that the state will finally push forward to realize their 60 year old desire to tap the Bear." This article can be accessed here: <http://epubs.utah.edu/index.php/jlrel/article/viewArticle/103>. It is unclear in this initial review what the state intends to do with this project in the near future.

Central Utah Project: The Central Utah Project (CUP) is a state supported federal project. CUP is being constructed by the U.S. Bureau of Reclamation and the Central Utah Water Conservancy District (CUWCD) took over construction of some of the final water distribution components. The project is explicitly listed in the Utah's State Water Plan as being necessary. It is located in the central and east central part of Utah. CUP is the largest water resources development program ever undertaken in the State. The project provides Utah with the opportunity to beneficially use a sizable portion of its allotted share of the Colorado River water. Project irrigation water will be provided to Utah's rural areas in the Uintah and Bonneville Basins. Water will also be provided to meet the M&I requirements of the most highly developed part of the State along the Wasatch Front where population growth and industrial development are continuing at a rapid rate. Water developed by the Central Utah Project will be used for municipal, industrial, irrigation, hydroelectric power, fish, wildlife, conservation, and recreation. The project will improve flood control capability and assist in water quality control

One key component of the project is the Bonneville Unit - This complex unit is currently being constructed and includes 10 new reservoirs, more than 200 miles of aqueducts, tunnels, and canals; a power plant, pumping plants, and 300 miles of drains. Starvation Reservoir, constructed on the Strawberry River about three miles above Duchesne, has a capacity of 167,000 acre-feet and Soldier Creek Dam has nearly quadrupled the capacity of Strawberry Reservoir from 283,000 to 1,106,500 acre-feet.

Other States:

Wyoming: The Wyoming Water Development Commission has financed many projects, including the State's share of the cost of raising Reclamation's Buffalo Bill Dam.

Kansas: Kansas purchased storage in Corps reservoirs for water supply uses.